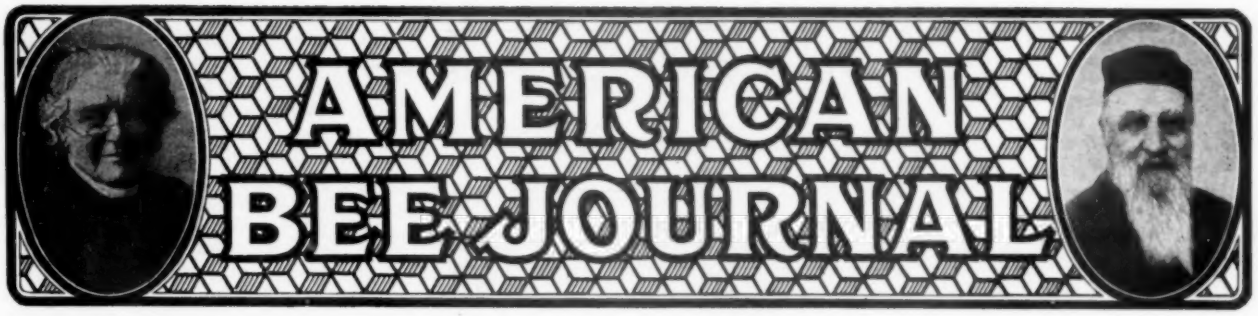


Vol. LXXV—No. 9 Hamilton, Illinois, September, 1935 Monthly, $1.00 a Year

Equipment for a Honey Packing Plant

By Walter H. Hull,
Virginia.

EQUIPMENT for a commercial honey packing plant capable of handling 120,000 pounds or more a year would consist of apparatus for melting, processing and bottling extracted honey, for cutting and bottling chunk honey, for wrapping section honey, and, in some cases, for cutting and wrapping comb honey.

The extracted honey would require by far the greater part of the equipment. The amount would probably equal or exceed all the other kinds put together. My own experience has shown about equal sales of comb and extracted, but dealers in the city report an increasing preference for extracted honey, and three reasons for this trend at once appear: The customer gets more for his money; The honey is easier to handle; Clean extracted honey is suited to a wider variety of uses. It is not at all likely that good comb honey will disappear from the markets, for there is nothing in the world like it; but it seems entirely probable that, as the honey market is developed and the use of honey increases, more extracted than comb will be used. Therefore equipment for handling it to the best advantage will be a good investment.

The device for filtering honey recently brought out by the Bureau of Chemistry has so many points in its favor that no commercial plant would be complete without it. In the filtered product we get better appearance, retain more of the flavor and other vital qualities, retard granulation for a longer time; and I think it will be found (although this is as yet unproved) that filtered honey can be eaten without discomfort by many persons who are unable to use honey at all in its natural state.

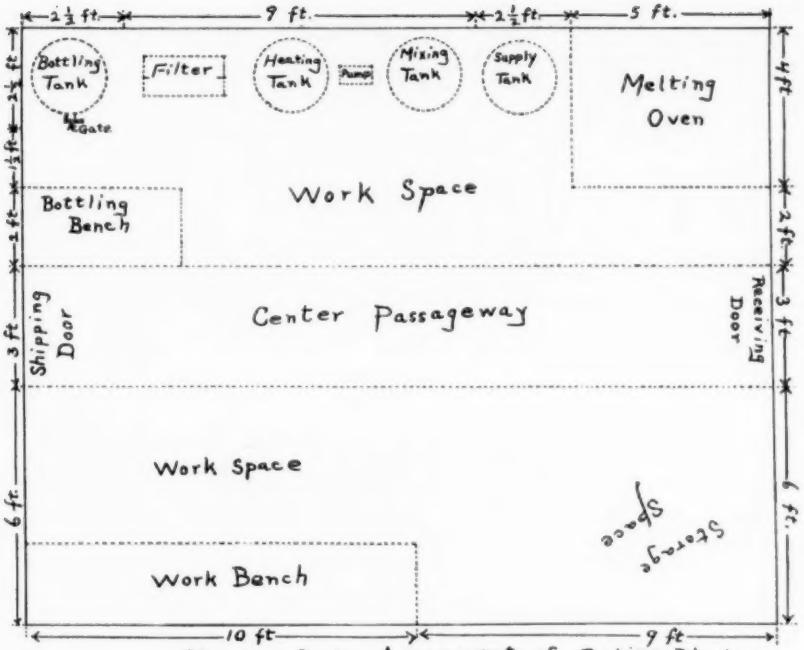
But, to go back to the beginning of the process, we would need first of all a liquefying tank. There seems to be no standard plan for such a tank. Every man designs his own, and scarcely two can be found alike. There are, however, two definite and distinct methods of liquefying—hot water and hot air. The former is by far the commoner method, perhaps because it is the more obvious, which, however, does not at all prove that it is the better.

Most of the melting tanks that I have seen, where honey is handled in some quantity, will take from eight to twelve cans at a time. They are jacketed around the sides and are covered on top to retain the heat. One of the best ways to heat the water is by running steam pipes through it, either from a small boiler for this purpose alone, or from a larger general-purpose boiler.

Consider the process and what it involves. The sixty-pound cans are set in water and the honey remains in them until it is all melted. After it begins to melt, it must be stirred frequently or that which has melted first will be overheated. Generally it is overheated to some extent anyway; but unless much care is used, it may be ruined. Then, if the cans are full enough to give you anything like full weight when the honey is bottled, they will run over when heated. We may dip it out—if we can find anything to dip with. Or we may remove the can from the tank, pour out some of the honey and then replace the can. Laborious as that is, I havefound it easier than trying to dip. And when after several hours, we have the honey properly melted, the cans have to be lifted again and the honey poured into a tank. There is also danger of loss if a can happens to leak. And on top of that, so to speak, if there happens to be any foam on the top of the honey, the repeated stirrings will carry it back into the body of the honey, which is just where you don't want it.

Consider now the hot air method of melting. Instead of the tank of hot water we have a hot air chamber —in effect, a large, low-temperature oven—heated to about 160 degrees. In the bottom of this chamber is a pan from which the melted honey runs by gravity into a supply tank. Above this pan are racks of v-shaped cradles into which the cans of honey are placed, with the mouths of the cans toward the front and at the lowest point, in order that the honey will run out as fast as it melts. The rear of these cradles is about an inch higher than the front, giving the cans a forward tilt. Then by punching a small hole in the very corner of the can below the mouth, the honey will drain out to the last drop. There is no waste, no messy stirring, no further lifting of heavy cans. There is no danger of overheating and no loss from leaks. Simply punch the holes in the cans, remove the caps, place the cans in the racks, turn on the heat, and in due time the honey will be in the supply tank ready for filtering. The cans may be removed as soon as they are empty or they may be left in the oven until you are ready to melt another batch of honey. However, if it is planned to use the cans again, the holes that you punched should be closed with solder to keep the air out. To wash them first and then dry them in the oven would leave them in the best possible condition.

The racks should be so arranged that the honey will fall free as it drains from the cans. Honey from the cans above should not drain on those below. Racks should preferably



Showing Inside Arrangement of Packing Plant.

be made of light steel, the parts being bolted together. If the front rack is made removable the oven can be made deep enough to take two racks. Thus an oven about five feet long, four and a half feet high and four feet deep would take two racks, each holding three rows of four cans each—twenty-four cans in all, or 1,440 pounds.

Such an oven should have a reliable heat indicator. Either direct heat, with suitable baffle plates for diffusion, could be used, or steam from a boiler. As steam would be needed for processing the honey, the boiler could well be made to serve also for melting it. To conserve heat, the oven should be suitably jacketed.

From the melting chamber the honey would flow by gravity into the supply tank and from it by gravity again into the mixing tank. The pump would then carry it back up through the heating coils and filter, and from the filter into another tank from which it could be drawn off into bottles. This arrangement would bring the bottom of the heating chamber about five feet above the floor. There should be a well-built platform in front of it to work on, and a hand elevator, operated by a chain hoist, for raising the honey to this level. The boiler could then be placed, if desired, directly beneath the heating chamber.

In a building sixteen by twenty feet there would be just about room along one of the twenty-foot sides (about nineteen feet net) for this equipment. By placing the heating chamber in the right hand corner, as you face this wall, the bottling tank at the other end of the line could be set flush in the corner with the gate toward the front; and about two feet farther down the end wall would be the bottling bench. This would be the correct arrangement for a right-handed operator. He would face the wall, operating the honey gate with his right hand and handling the bottles with his left.

With this arrangement it takes about five minutes to fill twenty-four one-pound jars, which would be 288 an hour, or, under working conditions, about 2,400 a day. With a filtering outfit able to handle 1,200 pounds at one run that amount (1,200 pounds) could easily be filtered and bottled by one man in a day. In a plant of this size bottling by hand would be cheaper than using a bottling machine, on account of the high cost of a machine that would do this work.

The same thing would apply to labeling. A labeling machine capable of handling the various sizes of containers that a honey packer would use would cost around $1500. It would require the labeling of about two hundred thousand containers a year to justify that investment. Even then the label machine would not be a vital necessity. It takes me about the same length of time to label jars as it does to fill them. Others, I think, might work faster.

For wrapping comb honey no special provision would have to be made except a bench to work on. This same bench would be used for cutting chunk honey, and for this work adjustable cutting knives, such as are used by the packers of cut comb honey would be a help. Cut comb honey is making a place for itself in some markets, but does not and, I think, never can take the place of section honey—a comb surrounded by a rim of wood which holds the cellophane wrapper safely away from the delicate cappings. Extra equipment for handling cut comb costs about $60 in a plant of the kind we are considering.

In the following estimate of costs I have allowed $800 for a building sixteen by twenty. It might be built for less; it might easily be made to cost more. The allowance of $250 for installation must also vary widely wth individual conditions, but this item has a tendency in most cases to be about double what the builder thinks it will be.

Estimated Cost of Packing Plant

Building, 16x20	$ 800.00
Filtering outfit—complete except tanks and mixers	600.00
Storage tank—120 gal.	15.00
Bottling tank—120 gal.	15.00
Mixing tank, with mixer	30.00
Heating oven, for melting	75.00
Boiler	100.00
Connecting pipes, valves, gates, etc.	25.00
Comb honey equipment — cutting knives, and incidental tools	75.00
Installing filter, boiler, tanks	250.00
Total cost of plant	$1985.00

Best Age for Queen Acceptance

I have observed that queens are more easily found after the first examination. This is probably due to their not hiding away so much when once they are used to their colony being disturbed. It is possible, too, that something of the same nature would apply to a second introduction; for on second introduction, the queens will remember the first one, and be less nervous.

If the queen did remember a former successful introduction, the memory might influence her behavior and influence the introduction. For the behavior of the queen does cause the bees to react towards her in different ways. Whenever a queen is frightened, the bees will ball her; and when she asks for food, they will feed her.

It is sometimes possible to run a queen in at the entrance after the Simmins plan where the hungry queen is run into the colony at dusk. If conditions are right, this is fairly successful. We used this for years and only abandoned it for the slower, surer way, of the push-in-the-comb cage.

John Rosser,
Australia.

New York Shows Increase

Honey crops have been increased fifty per cent in more than two hundred colonies in demonstration apiaries in twenty-five New York counties.

Requeening in the Fall Broodless Period

So much has been said about this already that it has caused considerable interest in the possibilities of this new practice. Fall requeening, of course, has long been a standard part of beekeeping management and all the textbooks and writers on the subject of beekeeping have recommended requeening in August or September under favorable conditions of the honeyflow as being very desirable to provide strong winter colonies and insure good colonies for the honey crop the succeeding year.

However, the idea of requeening during the early broodless period is relatively new. As reported in these pages before, it was first brought to our attention by the Iowa inspector, Howard Shipton. We tried it last fall with considerable success.

This year, we intend to try it on a much larger scale and feel that we have reason to expect success from the experience already obtained. Successful introduction of queens in the early broodless period has been experienced by beekeepers in such widely separated places that it seems to be the universal part of beekeeping behavior which has been overlooked previously.

It must be understood that the requeening of bees in the early broodless period does not mean when conditions of winter are here at the time the work is done. Last year, a Wisconsin beekeeper ordered queens from a southern breeder at the beginning of winter and lost the queens from cold weather on arrival.

The early broodless period means those days of fall when brood rearing is practically over and the bees, on cold nights and cool mornings, have begun to form a cluster. There may still be a small patch of brood in colonies with the best queens but there are no longer very many, if any, eggs being laid.

Under these conditions, it is easy to find the queen in the center of the loose cluster and replace the poor ones with queens introduced in the usual way in mailing cages. There is little apt to be robbing because of the cool weather, and the small size of the cluster and brood nest makes it easy to find the old queen.

Queens that are poor will seldom have any brood, the cluster will be small and the queen herself will look old and ragged. Good queens will look bright and fresh.

British Columbia Sets a Record

Every year the honey crop of British Columbia increases. For the past three or four years, there has been a record crop. This year promises to be no exception. The increased yield is due in large measure to a bumper crop in the Fraser Valley and lower mainland. The crop there has jumped from 605,725 pounds in 1934 to a probable 700,000 pounds for 1935. The lower Fraser Valley usually has the best average production of all the western districts.

The attention of British Columbia beekeepers is turned to exhibitions in Canada and England where laurels have already been won for British Columbia honey. At the Vancouver exhibition, a record display is expected. A good entry will also be sent to the Imperial Fruit and Honey Show in England.

District Inspector, A. W. Finlay, is importing approved jars from England for British Columbia exhibitors.

W. H. Fullerton,
British Columbia.

Old Combs

Emil P. Bach says combs used forty years had cells so small you could hardly get a match into them. E. S. Miller says combs in use for fifty years are as good as ever.

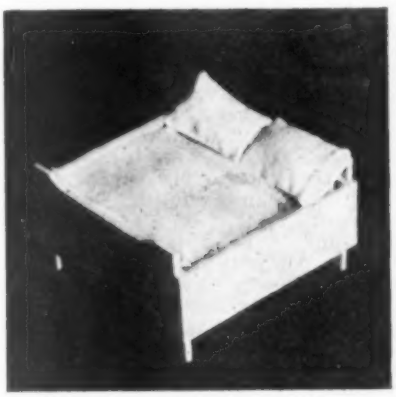
I have had a few metal spaced combs still in use in the brood chambers. The combs in these frames are fifteen to twenty years old. Except for the frames, I could not tell them from the newer ones. Unusually heavy combs are the product of careless beekeeping.

I have just been culling out a number of such combs from bees bought last year. They are invariably mutilated and contain drone comb and burrs. In the mutilation large amounts of wax and propolis are added. One could easily believe, by the weight, that such combs are full of honey. A good brood comb is seldom overly heavy unless filled with pollen.

George Harrison, Jr.

A New Use for Sections

By Ruth Hodgson,
Wisconsin.



Calling all children! Calling all children!

Does your daddy raise comb honey? Well, if he does, ask him to give you two or three clean, unused sections. The 4¼x4¼x1⅞ beeway sections are the best size, though others will do very well.

It is quite easy to make darling doll beds of these. They are fun for boys to make as well as girls. You boys can give them to your younger sisters.

Now here's how to do it. Put quite a thick magazine on your table, or the floor, and lay a section down on it with the grooves facing up. Then cut out the two pieces as shown in figure 1. Use a sharp knife or a razor blade in a holder. Take one of these small cut out pieces and cut it in half lengthwise. Cut each of these in half crosswise. These are the four legs. Now carefully put the two dovetailed edges together, first putting a little glue on them. Next glue the legs on. Put them on the inside, one in each corner. The only thing your bed now lacks is slats. Cut up another section to get these pieces.

Get a can of enamel at the dime store and paint your bed inside and out. When it is dry give it another coat. Then it will be shiny.

That is probably all you boys will care to do. The girls can make bed clothes. First a mattress and pillows. After that make the sheets, pillow cases, blankets, and a bed spread.

The photograph will show you a bed I made. They are just the right size for those tiny dolls many little girls have. I am sure each of you will enjoy making one of these beds.

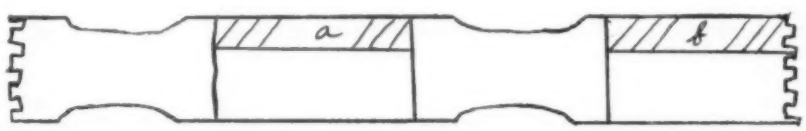


Fig. 1

From a Little Acorn a Mighty Oak Grows

For many years, the beekeepers of every country have been trying to find a satisfactory method of advertising honey and giving it the publicity that it richly deserves. It begins to look as though world-wide publicity for honey will soon be developed, and that honey will be as well-known to housewives of every country as is any staple product used for food.

When the founders of the American Honey Institute started their little program for honey publicity, it is not likely that they were able to appreciate that as a result of their effort, international publicity for honey would soon spread into all parts of the world.

The American Honey Institute is slowly but surely making headway, and gradually more and more beekeepers are coming to appreciate the value of the work that is being done.

We should not attempt to claim that the Institute is responsible for the development of similar organizations in other countries, but we do know that the story of the Institute has been carried in many foreign journals and commented upon with much favor. Several European countries are following the same plan, and at the present time, the Ontario beekeepers are in the process of developing a honey publicity organization somewhat similar in nature to that of American Honey Institute. And in the June 15 issue of "The Australasian Beekeeper" we find an editorial suggesting the development of such an organization in New South Wales and other Australian provinces. The Editor suggests a Honey Institute Federation or Publicity Committee; in closing, the Editor writes—"We want the means of telling the world what a wonderful food honey really is."

That is exactly what we are striving for in the United States today, and we sincerely hope that the beekeeping fraternity throughout the world will give its support to these various publicity organizations; for we are sure that more widespread publicity will make it much easier for every beekeeper to sell his honey at favorable prices.

What Causes a Heavy Yield of Honey?

On the crop and market page for this month, the readers will get a fairly comprehensive view of the honey crop for the 1935 season up to August 15-20.

From this it appears that the honey crop throughout the country was not nearly as good as had been anticipated by beekeepers.

A recent letter from Mr. A. G. Woodman explaining the situation is suggestive, we believe.

Mr. Woodman avers that the nectar secretion of plants is not nearly so heavy when we have ample moisture. In other words, the honey plants when they have ample moisture devote their efforts to rank growth and are not so taken up with reproduction. On the other hand, during an extremely dry season, there is a question whether the plants will be able to survive and the reproductive instinct, if you might call it such, is so dominant that the plants yield nectar freely and of a heavy consistency so as to draw insects and bees to them and assure of fertilization so that they may survive through their progeny.

This seems but reasonable. We have therein an explanation of why during very dry seasons like 1934, in spite of the handicap of shortage of bloom, the honey crop is a surprise to the beekeeper whereas in a wet season like the one just past where there is a heavy foliage, the honey crop, on the other hand, is a disappointment.

Here is a field for research on the part of the scientist and observation on the part of the beekeeper.

We know very little yet about honey plant secretion and the proper climatic conditions and soil content for most favorable yields.

It is a problem of great consequence to the commercial producer particularly, who, if he had definite data on which to work, might be able to move with the honey-flows and with the climatic and soil conditions far more advantageously than he can at present. Undoubtedly this is one of the questions which will be worked out in the course of time.

W. J. Sheppard

In the passing of W. J. Sheppard, of British Columbia, Canada loses one of her best known beemen. He served for many years as provincial apiarist and his name was familiar to the beekeepers of both Europe and America. His was the type of inquiring mind which has made the progress of beekeeping possible. Always he was looking for a new and better way.

Among the things which his enthusiasm helped to call to popular attention are the Kootenay winter case and top and middle entrances. The problem of wintering received his serious attention for many years.

Next to his bees Mr. Sheppard loved flowers, and his garden at one time contained more than seven hundred named varieties of cultivated plants. He probably never owned enough bees at one time to make what would be regarded as a modern commercial apiary; yet he had a widespread influence on the beekeeping of a nation.

Another link connecting us with the past is broken; another of the old timers is gone. We are greatly indebted to these men who bridged the gap between the old and the new—the men who found the bees in hollow logs and straw skeps and who left them in modern hives with up-to-date equipment for harvesting the crop.

Only a few of their generation remain; soon they will all be gone. And when they have passed, their kind will no longer be prominent among us; for we are living in a new day when commercial problems are uppermost in the mind of the beekeeper.

Our Disease Experiment

Quite naturally the publishers of this magazine are much pleased with the great interest manifested in the cooperative experiment which has recently been undertaken by the Iowa Agricultural Experiment Station, the Extension Service and the American Bee Journal.

We are surprised at the number of beekeepers who tell us of cases where one or more colonies have survived in apiaries where American foulbrood has nearly wiped out the bees of a community. In a few cases apiaries have been built up again from these survivors and there is evidence which indicated that they may have lived because of natural resistance to disease. Some of these stocks have been sent to our experimental apiary near Atlantic, Iowa, where they are being put to severe tests in order to ascertain whether or not they really do have resistance to disease to a greater degree than is to be found in other bees. Bees with such histories have come to us all the way from Vermont, Texas and California; and the comparative tests of these bees from many sources should be of real interest.

All scientific investigation is in the hands of Dr. O. W. Park. His careful work in previous investigations gives confidence that nothing which promises to contribute to the final success of the undertaking will be overlooked.

The generous offers of cooperation which have come from far and near give much encouragement. As the season is drawing to a close, not much more can be accomplished this year; but we hope that our readers will watch closely all cases which indicate disease resistance and that they will bring them to our attention as soon as work can be started next spring.

We have no prophecy to make as to the outcome. If there is such a thing as American foulbrood, we hope to find it. Control of bee disease is a national problem and all the forces of the industry should cooperate to find a solution. If resistant stock is available with which to work, some agency should use it to breed select stock for general distribution. To prove the existence of some degree of resistance is only the first step in the program; but we believe that, if resistance can be proved definitely to exist, there are several institutions which will undertake the propagation of special strains selected and bred with this end in view.

Considering the fact that disease is the most serious problem facing the beekeeping industry, it seems a bit strange that more attention has not been given to research in this field. Had it been an easy one, someone would have found the way out a long time ago.

It is very doubtful whether any bees exist which are entirely immune to American foulbrood, but the success attained in other fields in breeding for disease resistance leads us to hope that something similar may eventually be done with bees.

In the meantime some very interesting observations are going on at the apiary at Pellett Gardens. There are several strains of Caucasians, including offspring of recent importations from Russia; there are similar representatives of Carniolans including recent imports; there are numerous Italians and their hybrids, including some of the stock which has so long remained pure in Tahiti; but best of all there are the survivors whose records of escape from contagion or of recovery from disease give us hope for the future. We shall await with interest the report of results from Dr. Park's uniform exposure of all colonies to disease. Considerable time will be necessary to determine whether apparent resistance is merely postponement or whether it is what it appears to be.

Mr. Pellett, our field editor, will remain at the apiary until the bees are packed for winter and will then return to Hamilton to spend the winter months in the office. Professor Paddock, Iowa state apiarist, and his staff when making inspections over the state are watching closely for promising stock and are thus able to bring in much material for experiment.

The National Conventions

The national meetings are to be held in October this year. This is a departure from the long standing custom of holding meetings during the winter months. It is probable that this change will be very popular and will result in increased attendance. October is a favorable time for the beekeeper to get away for a few days. It is a good time to see something of the apiaries and equipment of beekeepers in the region where the meeting is held. In this case, Michigan is to be the host to the beekeepers, and Michigan is a leader in honey production.

The success of the meeting at Valdosta, Georgia, last winter led to the adoption of a plan to hold every alternate meeting somewhere in the South. It was generally understood that next year's convention will go to Texas. If the northern conventions are held in autumn, it will encourage southern bee men to come north for a trip, just as the winter meetings in the South will encourage northern men to go south.

Interest in the conventions has greatly increased since the Honey Producers' League and the American Honey Institute have held joint sessions. When the conventions go south the Southern Conference adds its influence to the success of the occasion. Do not fail to be present when the beemen meet in Michigan next month.

Honey Prices

In the markets honey now occupies a position very different from that which it held in years past. It is recorded that in ancient Rome in the year 301 honey was worth about thirty cents a quart, while wheat was worth about thirty-two cents a bushel, as nearly as can be reckoned in our money.

In that day honey was staple, the one product on which the world depended for sweet. A quart of honey was very nearly equal to a bushel of wheat in price. Both were produced by crude methods since the laborsaving machinery on which we now depend had not been thought of.

At the time of this writer's early recollection a pound of honey retailed at about the same price as a pound of butter. Honey, although no longer relatively as high as in ancient times, still brought a price which could be exchanged for other goods on a favorable basis.

In recent years honey has lost its favored position until it sells in competition with low priced products. In the average market it will probably bring about half the price of butter. There is much agitation on the part of beekeepers for better prices, but it is very doubtful if the relative position of honey in the market can ever be regained. Cheaper sweets have found their way to the consumer's table, and he is unwilling to pay much more for honey than he does for them.

The only remedy appears to be to keep more bees and to manage them more efficiently, to make up by increased volume what has been lost in reduction of price.

Questions About the Honeyflow

The sudden cessation of a heavy honeyflow raises some serious questions in the mind of the beekeeper. He wants to know just what factors determine the honeyflow, but no one can tell him. In large areas during the past season the honeyflow from sweet clover was unusually heavy and beekeepers were confident of a large yield. Suddenly, without warning, it stopped. Instead of carrying in honey, the bees began to rob. Everything was at a standstill. Except for a rain and some change in temperature there was no apparent reason for the change in the behaviour of the nectar sources.

Thus it appears that very little is known about the fundamentals of honey production. There may be a large acreage of the finest honey plants, bees may be in the best possible condition, equipment may be good and with an unlimited supply ready, but there is no assurance of a crop. There is a point beyond which the beekeeper is unable to go. If Nature is kind, he gets a big crop; otherwise he gets a small one.

There is a very real need for a comprehensive study of the factors that influence nectar secretion. The problem thus presented to the student is a complex one, and it is apparent that the combination of numerous environmental conditions determines the yield. What they are and just what happens to make or mar the prosperity of the beeman remain to be determined.

There are localities where good crops are the rule. There are other places where good crops are the exception. Nowhere can entire dependence be placed on the returns. Probably there is but little that man can do to influence the result; but an understanding of the conditions on which the livelihood of the beekeeper depends would simplify his problem and increase his chances for success.

Know Your Location

There is a woeful lack of information regarding the sources of nectar on the part of many beekeepers. If there are only one or two major honey plants such as sweet clover, alfalfa or white clover, the beekeeper is likely to be familiar with them; but where the honey comes from several plants, as is likely to be the case, too often they are unfamiliar to the man who depends upon them for a livelihood. No better way for a beekeeper to spend his time can be suggested than in a study of the honey plants of his locality, their time of flowering and their relative importance.

Queen Rearing —Mating

By Herman McConnell,
Illinois.

Shade and a distinctive line of flight for each group of nucs is essential.

IN completing the articles on queen rearing, something should be said on the subject of mating.

The queen breeder's greatest expense is his investment in mating boxes. Unlike the honey producer, the queen breeder has no standard hive. Everyone agrees that it is not at all practical to use full colonies for mating purposes. Some breeders use a standard hive body divided into two or more compartments. Others have special nuclei varying in size from the Langstroth frames to a section box or so. We have used various styles—twins, quadruplets and what not; and they all have their faults. It has been our experience in using a nucleus with two or more compartments that far too many of them fail to furnish a mated queen. It seems that a virgin queen has just so much piping to do, and when another queen on the other side of a thin division board answers her challenge, things do not turn out very well. It is something like an apartment brawl.

Such nuclei are usually placed on the ground where it is difficult to bend over them and to get down on one's knees day in and day out. Apart from this, we have had too many failures with such hives to be satisfied with them.

We have sought a nucleus that will furnish a mated queen for nearly every cell given and yet which will require the minimum amount of time and work to manipulate. No nucleus can be developed that will furnish 100 per cent matings. There are always a few virgins that will sally forth never to return. You will say "Oh! Baby Nucs, eh?" We know they have been ridiculed and we have done so ourselves. But we have made exhaustive comparisons and everything is in their favor.

Naturally, the first qualification to consider is the kind of queen one can expect from them. The queen will be no better than the cell given. We do know that a queen taken from them will be of practically the same status as a queen emerging with a swarm. Did you ever know of a colony superseding its queen a week or so after swarming? Possibly there are a few. Yet had you practiced shook swarming and performed the operation a few days prior to their emerging, they would have superseded their queen perhaps eight times out of ten. It is a severe shock to a queen that has been laying heavily to cage her for a few days; and it is a proved fact that she will never duplicate her earlier performance.

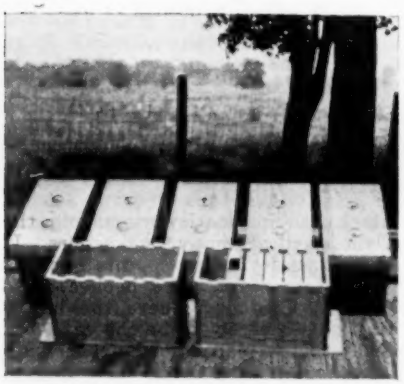
Our nuclei contain four 4x5 sections and a feeder. The sections have been ripped to one and one-eighth inches in width so that the combs can be spaced one and three-eighths inches. This is the spacing of bee comb in its natural state. The brood nest is spherical in form.

There is more room than one would at first think. There are approximately 3,600 brood cells in each nucleus. Assuming that the bees use one-third of them for food, that leaves 2,400 cells for brood. As one can get two queens a month from them, that will allow each queen to lay 1,200 eggs or better, enough to convince one that she is normal in every way.

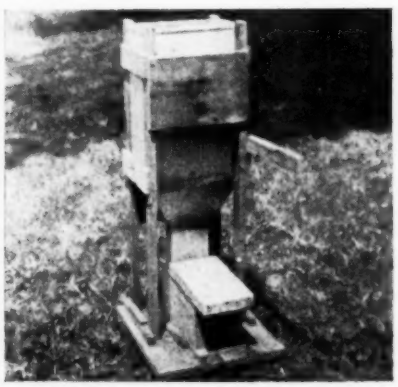
With this kind of nucleus, it is necessary to fit the sections with comb or else to get them drawn in the nuclei from foundation. We usually let the bees build their own comb which requires a little heavier feeding.

Some breeders cut brood to fit their mating frames but that job is a slow messy one which we detest. Others shake several pounds of bees into a big screen wire cage and leave them in a cool place for a few hours, then sprinkle them with water and dip the proper amount of bees into each nucleus. Some breeders pin a ripe queen cell on the comb, others have virgins at hand which are dropped in with the bees. This procedure may be all right provided the weather is ideal and one does not mind the extra amount of work involved.

We prefer to shake the bees directly into the nuclei which are constructed in a way that will permit us to do



Construction of nucs. Tin plugs in lid enable one to put in cells or feed without removing lid.



Funnel for shaking bees into nucs. Handle raises and lowers funnel for quick operations.

Putting in cells is so easy and simple even small boys can do it.

so. As the sections and feeder are held the proper bee space apart by the notches cut in the mating box proper, we are enabled to haul them about without frames or feeder being thrown out of alignment. In fact, the nuclei can be turned in any position without destroying the spacing, as long as the lid is held in place.

To prepare these boxes for the bees, we fill the feeder about one-fourth full of water and then pour in dry sugar until the feeder is full. By so doing we prevent many bees from drowning as they would if a liquid feed were used. Twenty-four hours before ripe cells are to be removed, we estimate the probable number and prepare the required number of boxes. These are loaded on the truck and taken to the yard which is to furnish the bees. There enough moderately strong colonies are prepared by placing a queen excluder above the brood nest and then a shallow super of dry extracting combs. Bees are driven up by smoke and a little drumming on each hive. When, in three or four minutes, the supers are well filled with bees, the shaking starts. The handle on the funnel frame raises and lowers the funnel into the opening just back of the feeder. The lid on the nucleus is set forward and box and all slid under the funnel. If one has made a good selection of colonies, one shallow frame will have enough bees adhering to make a good strong nucleus. The frame is lowered into the funnel, jerked quickly, and the bees tumble down through the funnel into the box like so much water. It is essential that dry combs be used in the super, otherwise the funnel will be smeared with honey. In this manner, a man and a couple of boys can drive to a yard, prepare ten or eleven colonies, fill one hundred boxes and be gone in thirty minutes. No great amount of labor is involved either.

If the weather is not too hot, these nuclei are set on their summer stands; otherwise a cool place is desirable, such as a cellar. In a few hours, these bees will set up a roar for a queen and, in so doing, will raise the temperature of their box so that there will be no danger of a cell being chilled when given. Nor will there be any danger of them neglecting it either. They have been without queen or brood for twenty-four hours and every bee is gorged with syrup. Consequently they are in a condition to accept almost every cell we give them. Cells are put in through the hole in the front of the lid and pushed down between the combs. The notch in the section just below this hole permits it to be done without letting out a single bee. Twenty-four hours later (or forty-eight hours from the time the bees were shaken) they may be released late in the evening.

Each of the little tin plugs in the lids serves two purposes. The front

How feed is given. No trick to feed a dozen a minute.

one permits us to distribute cells without removing the lid—a quick and easy method. The position of the arrow or dash that has been painted on each plug tells whether or not the nucleus is queenless, has a virgin or laying queen. The back plug permits us to feed without taking off the lid and the position of the dash tells about how much. During the honey-flow some of these nuclei will get so full of honey that it may be necessary to cut out a part of two combs to keep them from going back of the feeder and building combs. It has been the general opinion concerning the small nucleus, that unless the queen is removed shortly after commencing to lay, she will lead out a swarm. We have never had one swarm because nuclei were too full of brood and honey. However, if there is nothing coming in and if the bees get low on feed, they will abscond.

We place two boxes on a post at such a height that they will be convenient to work while standing in a normal position. Shade is important, not only for the bees but for the comfort of the beekeeper as well. A second growth thicket is an ideal location for these nuclei and apparently the brushier the place, the better. In such a yard, one may arrange the nuclei so that each group will have a distinctive line of flight.

Aiolanthus Problem

The beekeepers of Vigo County, Indiana, passed a resolution early this spring asking that the several civic organizations discontinue the planting of the Aiolanthus tree. Dr. Ben. H. Smith, Professor of Botany, State Teachers College, has taken the matter up and has made considerable study of the subject.

The Aiolanthus is a wind pollinated plant. No nectar glands have been found in the blossoms so far.

If anyone has made any study on this subject or gets a gray-green honey with an objectionable flavor when this tree is in bloom, the Vigo County Association would like to hear from him. If anyone has any of this honey on hand, the Association will be willing to pay the shipping charges on quantities under five pounds.

Those persons interested may get in touch with William A. Pogue, St. Mary-of-the-Woods, Indiana, who is President of the Vigo County Association.

A Good Smoker Fuel

By Alfred H. Pering,
Florida.

I have tried all kinds of smoker fuel suggested. I have my own favorite. Here it is.

Any old thing that will burn slowly, with a little sprinkling of turpentine kiln dross mixed in. This refuse from the turpentine kiln will hold fire and is hot when you work the bellows, to revive your smoker just when you think it is out.

Notice I said a little mixed in. Too much will burn the bees, for it is hot stuff. The Florida Crackers use turpentine dross as kindling and when so used, you have a good fire right off the bat.

One writer advances the idea that a little piece of old comb placed in the smoker has a desirable effect. The bees seemed more easily tamed because of the odor of the burning wax.

I tried it on too small a scale to decide, as old combs are scarce with me. As a substitute, I tried old cloth that had been used on top of frames in place of the inner cover. This propolized cloth seemed to do the trick if you did not use too much of it, and choke the fire. The odor from this is about the same as from the old combs.

Odor from burning turpentine dross is not offensive. I do not know that it has any more desirable effect on the bees than any other special kind of fuel, but I find it highly satisfactory because it does not go out easily and is quickly revived.

One of the best fuels, whether used with or without turpentine dross, is the twine cut from packages of letters at the post office. There, it is refuse and I never fail to get all I want for nothing, especially if I sweeten the janitor with a little honey.

American Honey Institute NEWS NOTES

National Honey Week

Don't forget National Honey Week. Notice is on page 455. Make it a real week this year. Do your share. Your success depends more on what you do with the advantages you have than on what the other fellow does to help you succeed.

Don't forget National Honey Cookery Contest. Entries will be accepted at Detroit, Michigan, beginning on September 25 up to October 1. No entries will be returned. Address entries to American Honey Institute Detroit, Michigan, attention of Cookery Contest, Statler Hotel.

An individual entry blank must accompany each entry. These may be obtained by writing American Honey Institute, Madison, Wisconsin. Be sure to state the number of blanks desired.

Entries in all classes may be made by an individual. In mailing the package, be sure that it is properly addressed and that it contains your return address. Also that it carries an entry blank to assure proper identification.

There are three classes: Class A—Fruit Cake. Entries must use all honey as sweetening. To prevent drying, wrap the cake in waxed paper or cellophane. Pack in corrugated paper for shipping. Weight should average 1½ pounds. Fruit decorations are desirable.

Class B—Chocolate Cooky. Entries must use at least fifty per cent honey. Pack in glass jar or tin can to prevent breaking of cookies. At least a dozen cookies should be entered. The cookies should not be iced.

Class C—Caramel Candy. Entries must use at least a third or more honey. Wrap the candy individually in waxed paper or cellophane. Enter at least one-half pound.

Judging will be based on appearance, texture, flavor, eating qualities, baking, and age.

Prizes in Class A are as follows: $25; $15; $10; Fifty pounds paper shell pecans; $5; Twenty-five pounds California apricots; Pyrex Brand gift set; One year subscription McCalls; One year subscription Country Gentleman; One year subscription Household Magazine; One pound box Honey Acres Candy.

In Class B: $25; $15; $10; Twenty-five pounds Santa Clara prunes; One electric Heat Rite base; One Better Homes & Gardens cook book; One year subscription Pictorial Review; One year subscription Country Gentleman; One year subscription Farmer's Wife; One pound box Honey Acres candy.

In Class C: $25; $15; $10; Twenty-five pounds raisins; One electric Heat Rite base; One year subscription Successful Farming and Successful Farming cook book; One year subscription Country Gentleman; One year subscription Farmer's Wife; One year subscription Household Magazine; One pound box of Honey Acres candy.

These prizes are offered by different bee and queen breeders, supply companies, publishing companies and food and utility companies.

On to Detroit. Don't forget the National Honey Cookery Contest, a part of the National Convention of Beekeepers, which starts at Detroit, Michigan, October 7. There will be combined meetings of the American Honey Producers' League and American Honey Institute as guests of the Michigan State Beekeepers' Association.

Cudahy's Recipes of the Month

This is a publication of the Cudahy Company and the July issue is delightfully done in colors, featuring on page four Honey Peanut Rock Recipe. This recipe won a prize in the first Honey Cookery Contest. Miss Eleanor Howe, who prepares this monthly, included a picture of an adorable curly-headed youngster, sitting in a high chair with a great big honey peanut cooky in his hand. Miss Howe says: "This magazine, 'Recipe of the Month,' has a circulation approximately that of the nationally known woman's magazines."

100 Honey Helpings

It's in the press and we hope to be mailing you a complimentary copy with the September first News Notes. The book sells for ten cents and orders for 10,000 were received two months before the copy went to the printer.

Miss Davison's Recipe Univ. of California

Honey Meringue Minute Tapioca

1/3 cup minute tapioca
½ tsp. salt
2½ cups milk, scalded
1/3 cup sugar
½ cup honey
2 egg yolks, slightly beaten
2 egg whites stiffly beaten
1/3 cup shredded cocoanut—southern style.

Add minute tapioca and salt to scalded milk and cook in double boiler until tapioca is clear—15 minutes or longer, stirring frequently. Add honey and egg yolks beaten together and continue cooking till mixture is thick. Turn into greased baking dish. Cover with meringue, made by beating egg whites until stiff, adding sugar, and beating until mixture stiffens again. Sprinkle with cocoanut and bake in moderate oven (350° F) 15 minutes or until cocoanut is decidedly browned. Serve cold. Serves six.

Apple Grove Apiary

Mr. and Mrs. Kleeber

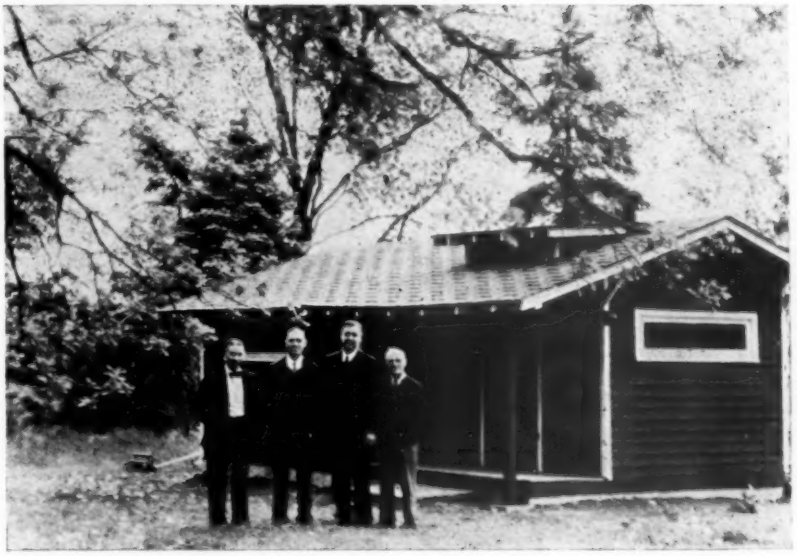
Doesn't that title make your thoughts wander to a winding road, fringed with daisies and marigolds on either side, leading up past a cozy home—back to where you can hear the pleasant hum of bees in the summer sunshine, as they dart back and forth from hive to blossom? Rows on rows of trees with apples turning their cheeks so the sun can tint each one a beautiful red—a path winding away to a honey house at the corner of the grove, where the keeper of the bees goes noiselessly about his work, extracting the golden sweetness.

That is what I saw when I visited at the home of the Kleebers. They have exhibited at the Fair every year since 1888—going a long way to set up their booth. They start a week before and camp right on the grounds, combining business with pleasure nicely.

Mr. Kleeber has devoted fifty years to beekeeping and at one time had five hundred colonies. He now takes care of one hundred colonies—always has a ready smile, is always ready to lend a helping hand—and anyone who has met Mr. and Mrs. Kleeber will vouch that they are two people who help make this a mighty good world in which to keep bees.

Millie Francis,
Wisconsin.

The Bughouse



This is the office and laboratory, at the cooperative experimental apiary at the Pellett Gardens, Atlantic, Iowa. Readers will recall the experiment on disease resistance which is cooperative between the Iowa Experiment Station and the American Bee Journal and under the guidance of Dr. O. W. Park. Our Field Editor, Frank C. Pellett, is the resident manager.

The building, used as the laboratory, is familiarly called "The Bughouse." Left to right are Dr. O. W. Park, M. G. Dadant, F. B. Paddock, and Frank C. Pellett.

"Let Others Follow Suit"

In a report of the annual meeting of the Florida State Beekeepers' Association for the year 1934, published on page 462 of the October issue of the American Bee Journal, appear the following sentences and comment: "Arrangements were made to put on a honey show at the Florida State Fair the coming winter at Tampa, the honey to be donated by members of the Florida State Association. After the exhibit the honey is to be sold and the proceeds to be donated to the American Honey Institute. [Hurray, a good idea. Let others follow suit.—Ed.]"

An account of the final result of this exhibit and the enterprise of the Florida Beekeepers' Asoociation officers, and members of their association, appears in the following paragraph published in the Journal on page 237 of the May, 1935, issue, under the caption, "Hats Off to Florida": "M. E. Darby, Secretary of the Florida State Association writes, 'Enclosed find one hundred dollars as a membership of the Florida State Beekeepers Association being the net proceeds from sale of honey exhibited at the Tampa Fair.' Perhaps more honey exhibits could be handled on this basis in other states."

The writer has, during his lifetime, fortunately had opportunity to visit many fairs in the different states of our country, county and district fairs too. These exhibits are instructive and entertaining to the general public as well as to the other exhibitors, and to beekeepers themselves.

It takes a little "get up" and some money to put on an exhibit by a single individual, if he makes a creditable exhibit and carries away a premium. It takes less of that "get-up" and money than the average person would guess, because honey has an attraction in itself that many other articles do not have that are to be found at fairs.

When honey producers pool their product for an exhibit, the uninitiated will be surprised at the extent and attractiveness of the display. Individual exhibitors stand little chance to outdo such a combination of effort, and fair association officers should take that fact into consideration when making up their list of premiums. In the Tampa Fair case, no premium was offered. The Association was paid for its exhibit; and the Association had no risk and did not compete with other exhibitors. This is, I think, as it should be.

It appears to me that this method of raising funds for the Institute is a very simple and an effective one. In the Tampa case, the honey was sold and the net proceeds sent to the Institute. This could be a good example to be followed by other state fairs. In the case of county fairs or of other smaller exhibits, the honey furnished by the beekeepers need not be sold, but the premiums donated to the Institute. Those furnishing the material for competition for premiums would be out nothing and would thus be aiding the Institute free of cost to themselves.

Fairs over the country are in full swing and I wish that I were better able to impress upon all those interested that this is a capital idea and will bring dividends if followed up effectively.

Go to it, beekeepers, and reap the reward of your own efforts.

Alfred H. Pering,
Florida.

Chain Stores Feature Honey

First National News, four sheet promotional news weekly of First National Stores, carries a feature article on honey in the issue for the week of February 25. This paper, distributed free to First National customers, has a weekly circulation of over half a million. Its program is to interest food buyers in special sale items, to call attention to special products and to promote better housekeeping.

Usually the items featured are those that have already been something of a sales success. Beekeepers should therefore be more than pleased that such a concern should give space to honey. It speaks well for the efforts of American Honey Institute which probably furnished the information; and it points out a brighter future for the honey industry.

It used to be difficult to get the chain stores to touch honey. Many articles in beekeeping magazines spoke of the chain store menace. But now, thanks to the Institute and to the efforts of some commercial bottlers of honey, they are coming into line, even to the extent of featuring honey. And keep this in mind: No matter what your personal attitude toward the chain store is, you will have to admit that they are a wonderful outlet for honey and as such deserve the cooperation of all beekeepers.

Robert M. Mead,
Vermont.

"Crystal Honey"

Granulated honey is being marketed in the West in increasing quantities as "Crystal Honey." This name is more fitting to the product of the hive and with a little sales effort, much of the silly idea of having to liquefy honey for sale will be overcome.

J. H. Sturdevant,
Nebraska.

Foulbrood and Heredity

By C. R. Walker,
Associate Professor of Biology, Western State College, Colorado.

IT is indeed gratifying from a scientific as well as a practical standpoint to see that at last there is a sentiment developing which will eventually eliminate a major part of the loss from American foulbrood. The burning method has been costly, wasteful, and to some an impractical way of eliminating this disease from apiaries in America, because it has been temporary in its effects and because new outbreaks may occur any time a honey container which has had foulbrood honey in it may be thrown out where bees may find it. Foulbrood has appeared in this isolated community in twelve hives when there are no other bees within sixty-five miles, and all new materials were used in starting these colonies. Then again foulbrood could be harbored in escaped colonies finding their lodging in a tree, or barn, or house.

Selection of foulbrood resistant strains of bees seems the only permanent answer to the question. From the original Italian stock by mass selection different varieties have been established, until now we have the yellow, golden, leather colored, gentle, prolific, and other strains. These things have been accomplished by mass selection with no control of mating, and no doubt the same thing can be done with resistance to foulbrood.

The cell is the unit of structure of all organisms, animal or plant, and in each cell there is a nucleus which directs the activities of the cell. Each nucleus of the cells of the queen bee and the workers contain chromatin material which makes during cell division or during maturation thirty-two chromosomes. Since the drone develops from an unfertilized egg, it has only sixteen chromosomes of which one is concerned with sex and probably does not affect the heredity. It is on these chromosomes that those things called genes or factors are carried, and the genes are the determiners of hereditary characteristics. It is obvious that since the workers and the queen have thirty-two chromosomes a reduction in chromosome numbers must occur before the eggs of the queen are fertilized by the drone. In this reduction process half of the chromatin (and chromosomes) is lost so that the mature eggs contain only chromatin for sixteen chromosomes. In the formation of the sperm cells of the drone there is no true reduction stage since the drone has only sixteen chromosomes at any time. When the sperm cell from the drone fertilizes the egg, the number of chromosomes is again established as thirty-two. In the loss of sixteen chromosomes during the maturation of the egg cells the breeder must bear in mind that half of the determiners of heredity or genes are lost. If resistance to foulbrood is determined by only a single gene in a given chromosome, there is one to one chance of its being retained in the mature egg cell; but if we consider it in combination with any other set of genes, the chance of getting it with any particular combination of factors found on other chromosomes is small indeed. The breeder must also bear in mind that a reduction of chromosomes occurs in those egg cells which will not be fertilized and will, because they are not fertilized, develop drones. Thus a drone might or might not have in his germplasm (chromosomes of the reproductive cells) the factor or factors which would determine the resistance to foulbrood, and there would be no way of telling that a particular drone had resistance in his germplasm unless it were accompanied by some other visible character; and unless artificial insemination were used there would be no way to insure this particular mating.

If the germplasm can be purified for the quality of resistance, selection could then be made within this stock for other desirable qualities. Unfortunately, however, we do not know that such resistance is determined by a single gene. If many genes are required in their cumulative effects to determine high or complete resistance, the problem of purifying the germplasm becomes greater.

The complexity of the problem, however, does not warrant a statement that it is impossible of solution. When we see the way T. H. Morgan and his associates have pried open the secrets of the heredity of the common fruit fly, **Drosophila**, we can easily hope that similar technique can be applied to the honeybee. Artificial insemination of queens has already been accomplished and this makes it possible to do away with part of the guesswork of selection. For those who cannot do this delicate work, there is still the possibility of using a drone trap on the hive to catch and kill undesirable drones for a period before the virgin queen is ready to make her mating flight. This would accomplish much that can be done by artificial insemination.

Experimentation with resistance to foulbrood would be difficult where there are large numbers of beekeepers. If mass selection for other qualities has had a tendency to weaken strains of bees to foulbrood as suggested by Mraz, no beekeeper would care to be in the locality where such experiments were being carried on. There are undoubtedly, however, many isolated communities where such an experiment would be possible without endangering other beekeepers.

An important part of the problem is to find someone whose training, experience, and finances would fit him for such work. Many colleges could carry on such experimentation, but are for the most part in centers of population where there are beekeepers also. The American Honey Institute is doing a good work in showing the superiority of honey for sweetening and in the diet, but some time might also be spent in interesting someone in the project of developing strains of bees immune to foulbrood, or it should at least use its influence to protect anyone who is working on such a problem from the "burning" influence of the inspector.

Vetch for Honey

By Lynn Reynolds,
Wisconsin.

Up until this year, I had two seasons in the last six in which bees have worked on vetch. Following winters of heavy snow and good spring rains, the bees get much nectar from vetch here during the first half of the bloom period or from the first to the middle of June. They work on the extra-floral nectar and on blossoms that have been punctured, also on plant louse deposits.

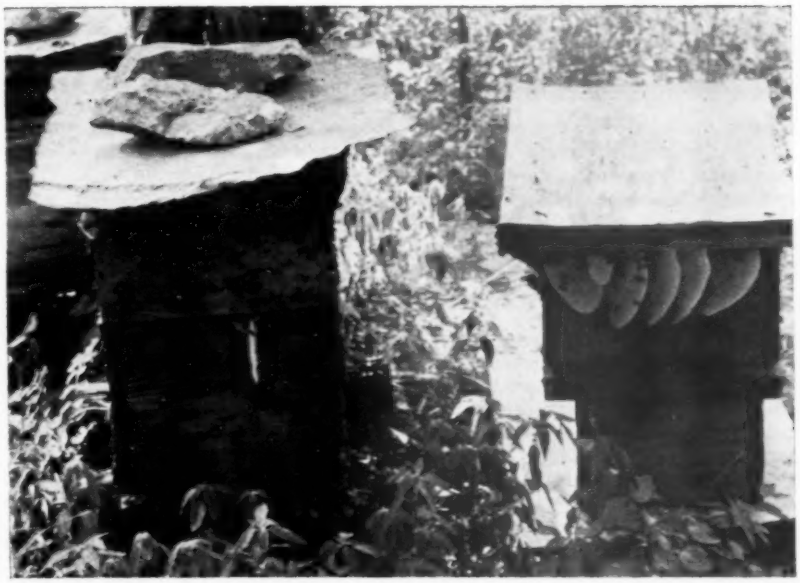
The honey is dark in color and has a slight tang which gradually sickens one.

This year, however, bees worked vetch intensively, apparently to the neglect of clover until about June 20 and at the end of that period, they broke into such an absconding fever as I never saw before. They worked only the blossoms and there were no blossom punctures and no plant lice. I find all the honey to be white but of no distinctive flavor.

I was surprised at this for the vetch fields had been giving off a very strong odor like crushed lemon peel or more nearly like green walnuts or prickly ash.

News from Oklahoma

By Clarence J. Tontz.



L. J. Austin, Oklahoma Inspector, reports that foulbrood in the state is much less this summer than last. He says: "Beekeepers are burning their way out."

He also reports that where vetch was abundant, the bees are in better condition than in other sections. Perhaps a wide-spread planting of vetch would take up the slack in our honeyflows.

The picture, herewith, was taken in the apiary of Sid Rose, July 11, near Hugo in southeastern Oklahoma. Conditions for beekeeping are good in this region. Mr. Austin says that much of the territory is undeveloped as far as scientific beekeeping is concerned. In this particular apiary, there are thirty cross comb hives. The bees in the smaller hive had been robbed two weeks previous to the time the picture was taken. The inspector found the hive full of brood and honey in the new combs on the outside as shown. The larger hive is boiling over with bees and a small comb is being started on the outside too. Rainfall is plentiful in this region and sources of nectar are fairly abundant.

The picture expresses more than words can tell the conditions of the territory. This great southeast region is well adapted to successful beekeeping but is, on the whole, undeveloped. With the cooperation of the beekeepers and the inspector, and a more modern outlook to meet the changing conditions, there is no reason why this should not be a good center for large honey production in the future.

A Trick to Catch Stray Swarms

A number of years ago, I tried to catch stray swarms by putting eight-frame hives in suitable places, leaving the entrances wide open, but never a swarm would enter. Observation has since taught me that the bees do not like large entrances to their new homes, probably because they cannot be as easily defended.

I noticed that bees entering the sides of houses always go through small cracks, requiring some time for the bees to enter. At one time I had a drygoods box large enough to hold two five-gallon cans, sitting near my bee yard and having only one can in it. During the swarming season, I saw a small swarm going towards the yard. A week later I saw bees going in and out of a small crack under the cover of that box. Raising the cover, I saw a small swarm of bees hanging on a comb that they had built, probably the same swarm that I had previously seen go over.

Since then I have been successful in catching stray swarms due to the fact that I make the bee entrance only ⅜x1½.

In one instance, I saw a swarm emerge, go directly to a decoy hive and cluster on the entrance and go in at once without first clustering anywhere else. Last year a swarm came from a distance and went over my house, down the other side and into a hive that I had fixed in this manner.

I have had swarms enter hives when I have been away from home. Whether they came from my own hives or elsewhere, I did not know, but I got the bees. If beehives were fixed up in this way and set out every year, I believe a good many swarms could be caught and prevented from going to the woods or elsewhere.

L. B. Avery,
Michigan.

"Farm Enterprise Mechanics"

The above is the title of a book just issued by J. B. Lippincott Company, in Chicago. It was compiled by Dr. Kary C. Davis and as its name implies, goes into detail on mechanics which will interest the farmer, being particularly adapted to farm departments in high schools.

There are 594 illustrations and much technical data on the making of different farm appliances.

The author devotes several pages to bees and beekeeping and describes particularly such articles as are not usually found in bee supply catalogs such as winter cases, cement hive stands, wiring devices, decoy hives, etc.

The book sells at a price of $2 and can be ordered from the publishers above or the publishers of this magazine.

Queens Without Candy

Dr. L. D. Wilmont, in August, speaks of transportation of package bees without feed. How about mailing queens in the same way?

A week or two ago I found a young laying queen that I wanted elsewhere. Not having any candy, I put her in a spiral cage with several attendants and placed a drop or two of honey on the cage which the attendants immediately took up. Intending to use her in a couple of hours, I placed her in my shirt pocket where I promptly forgot her. More than twenty-four hours later I heard a buzzing in my pocket and remembered the queen. The queen and attendants were as good as ever.

Given a dozen or more attendants, fed all they would take, how long would they last?

George Harrison, Jr.,
Virginia.

A Shoe Polish

To make a shoeshine last for days, polish the shoes in the usual way and then apply floor wax. Rub the floor wax to a high gloss and the shoes will look like new. Then, as they get dusty, rubbing with a cloth will restore their original lustre. Good floor waxes are made of beeswax dissolved in turpentine.

S. F. Haxton,
Pennsylvania.

By G. H. Cale

IT is surprising what a fickle thing a honeyflow is. You will remember our mentioning last month the tachinid flies on sweet clover. These are apparently parasites on army worms. They appear in a year of heavy army worm infestation in increasingly large numbers and establish adult residence on the bloom of plants like sweet clover. Our cessation of honeyflow corresponded closely with the appearance and disappearance of tachinid flies so I believe the drop in the flow which we noted in the last issue, was due to these insects in part at least.

At any rate, coincident with the disappearance of the flies, the bees began making honey again and for the balance of the season, until the 20th of August, made a fair amount. Except for this interval in the middle of the flow, when the bees gathered little or nothing, there would have been an above the average crop.

— o —

There has been an unusual amount of sac or pickled brood this year especially in black bees. In some colonies the amount of it has been so great that the colony was seriously reduced in strength and unable to gather much of a crop. Even in the latter part of the season, sacbrood was still present in many colonies. This disease is not usually considered serious.

— o —

Quite a number of colonies were entirely vacated by bees. Apparently they swarmed, the virgins failed to mate and the bees diminished until only a small number remained. These either died off or left the hive entirely empty so that it was possible to remove both hive and supers without a single bee.

— o —

Supersedure has also been bad or should we say unfortunate? The old timers depended on supersedure for most of their requeening. Mother and daughter queens working on the same comb and in the same hive has been a common sight this season too.

— o —

Apparently the fall flow in the river valleys will be as good this year as it was last. However, the prairies will be almost as good because of abundant rains which encouraged fall blooming of honey producers. For once, the bottomlands are almost too wet for the best growth of fall plants. There will not be as much late blooming white aster as in 1934 but a generous amount of it follows the record breaking bloom of last year.

— o —

We're going to try late fall requeening again this year. Every queen but two, put in in late October and November last season, came through with flying colors and gave a splendid record in strong honey producing colonies. Reports coming from many places indicate that late fall and early broodless requeening is excellent practice.

Death of M. L. Doll

A letter from S. F. Doll, of Buffalo, Minnesota, informs us of the death of Matthias Lorenz Doll who was born March 28, 1884, and lived his entire life in Minneapolis, Minnesota. Death came unexpectedly after a day's work and was caused by a stroke which rendered him unconscious, just as he was ready to go home, Saturday night, July 27.

He was an active member of the Minnesota Bee Supply Company, formerly of Minneapolis, now of Buffalo, Minnesota, and served as its president from 1916 until he sold out his interest in 1926 to E. H. Toensing of Mankato, Minnesota.

The remainder of his life was devoted to selling honey and conducting a retail meat market.

Highway Honey

By C. M. Litteljohn,
Washington.

Now is the season for highway honey. Constant displays that contact the motorist, will induce sales. Amber or white in the sunlight depending on the source—buckwheat or fireweed or clover—bottled displays on stands near the source of supply, will catch the coin of the Sunday crowds.

One of the joys of Sunday afternoon rides is to stop at a highway stand and secure something fresh, direct from the producer. So honey producers have taken to this form of marketing in plain jars through which the sun shines, whetting the appetite of the week-ender. The sun never tires of showing honey and as a salesman, he has no peer.

Keep tab on the number of cars passing a given point, and by the law of averages, which may impel one out of every ten or twenty to pause and buy, you will be able to select a worthwhile location.

Through this sunny eye appeal in the proper place, there is an irresistible sales stimulation, a new merchandising art and magic in the well planned highway display.

Curiosity Scores Again

We have all heard about curiosity killing a cat. And come to think about it, I don't believe we ever did find out just what it was the cat wanted to know. And now comes the sad tale of two goats whose curiosity proved too much for them and led them to a most uncomfortable end.

Two brothers owned two goats. These goats, in their travels one day came upon a beehive. Perhaps they had been watching the industrious little bees flit in and out and wondering what it was all about, or it may be they had quite accidently licked up a drop of honey in their browsings around the hive and decided they had to have more of this delectable sweet. The exact details leading to the disaster we will never know but at any rate, they butted the hive over. The bees promptly went into action—they got the brothers' goats. The bees stung the two goats so hard they died a few minutes later.

Benjamin Nielsen,
Nebraska.

Acid Injury

A. D. Hiett of Lynchburg, Virginia, writes about the experience of Philip Vinson in using carbolic acid for removing honey. Fumes from the acid penetrated through to Mr. Vinson's veins and placed him in the care of a physician for several weeks.

This is the first experience of this kind brought to our attention. We are asking Mr. Vinson to explain his experience.

Poison for Red Ants

If you are troubled with these bothersome little pests try this formula: Dissolve one pound of sugar in one quart of water, add 125 grains of sodium arsenate, then boil and strain the mixture. Add a little honey and a very little chopped fried bacon or other meat scraps. Put this mixture in small boxes in which holes have been punched to admit the ants but are so small that they render the poison inaccessible to pets.

Benjamin Nielsen,
Nebraska.

Making Canadian Honey A Quality Product

By H. D. Chataway and F. R. Armstrong,
Ontario.

THE successful attainment of the objects of the Fruit, Vegetables and Honey Act, insofar as honey is concerned, rests largely with the producers and packers of honey themselves. Definite standards of color and quality are set forth in the Regulations under the Act and it is only by close adherence to these standards that the industry can expand. Realizing this fact, and being charged with the administration of the Act, the Department has endeavored to make available to producers and packers the means whereby they may accurately gauge the color and quality of their product.

For several years past there has been active close cooperation between the National Research Council and the Dominion Department of Agriculture in dealing with various problems of the honey industry, especially those related to grading and marketing. As in the marketing of any other natural product the first big step forward comes with the elimination of the occasional poor lot of honey.

To accomplish this requires cooperation on three fronts. There must be research and the development of simple tests whereby poor honey can be quickly and surely recognized. There must be different grades of honey established by law, based upon these tests. Finally there must be the intelligent support of all those whose business it is to buy or sell honey. The first two conditions have been and are being fulfilled, the third is the weak point at the present moment.

It would not perhaps be fair, however, to blame the honey producers and wholesalers for this state of affairs. They may not know just what has been and is being done in the way of research, and of the establishment of different honey grades.

The Fruit, Vegetables and Honey Act requires that all honey intended for export or for interprovincial shipment shall bear classification and grade marks. **Classification** is according to the color of the honey in liquid form. **Grading** is according to freedom from foreign material and from foreign flavours and aromas, amount of foam, fineness of granulation, and moisture content or "density" of the honey. Whereas some of these properties can and indeed must be left to the individual judgment of the shippers and inspectors, color and moisture content require scientifically designed instruments for their measurement. Moreover, for these two properties specific and definite limits for each grade and class of honey are set forth in regulations under the Act.

The advisability of classifying honeys as to color has long been recognized by those in the trade who realize that no other simple method is available which will result in the rough classification of honeys according to mildness or strength of flavor, and give to our various lines of honeys some semblance of uniformity.

Last year, to enable the practical carrying out of the provisions of the Act, the Department requested the National Research Council to draw up specifications for a honey color classifier which would be reasonably cheap and accurate. This was done, but the difficulty then arose of finding firms to manufacture and market the instrument. Although the two Departments in close collaboration were finally successful after much effort and persuasion in arranging for the manufacture of the Classifier, the difficulties which were encountered illustrated clearly the need for intelligent cooperation of the whole industry.

Briefly, the Government officials found themselves possessed of the legal right to enforce the strict classification as to color (and moisture content) of all honeys intended for interprovincial and export trade; they had also carried out the necessary study and had drawn up minute instructions for the manufacture of a reasonably priced instrument for determining the color class to which any honey belonged, but because they could not speak for the honey producer and guarantee to the manufacturers of the instrument a reasonably exact volume of their sales, they very nearly met defeat. Personal appeal to certain public spirited bee-supply firms did much to save the day, and finally sufficient orders were secured and the necessary number of Honey Classifiers manufactured and put on the market in time for a good start to be made in 1934 towards the enforcement of the new Act.

As regards moisture content, or "density," of the honey, an article by one of the present authors, entitled "The Determination of Moisture in Honey" published in the January, 1933, issue of this paper not only dealt with the work which had already been done in developing methods of determining moisture content and in establishing a relation between moisture content and tendency to ferment, but also pointed out the practical importance and advantage of the rigorous grading of honey on the basis of its moisture content.

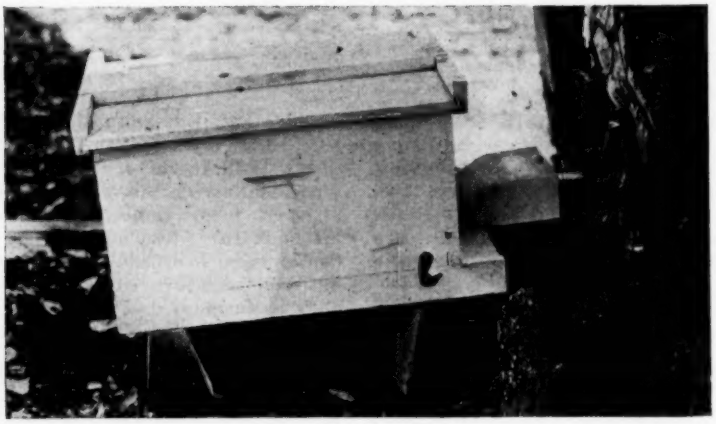
No attempt was made during the past season to enforce the requirements set forth in the regulations with regard to moisture content, owing to insufficiency of time in which to make preparations. This year, however, the situation is very different, and the trade may expect that both the color and density provisions of the regulations will be enforced.

Profiting by their experience last year in connection with the Honey Classifier, the officials have begun in good time to arrange for the manufacture of the special honey hydrometer needed for the grading of honey according to density. Due to the precise scientific nature of this instrument it was felt that it could best be produced by a regular firm of instrument makers. A Canadian firm has, therefore, been asked to take the matter in hand, and they are now looking into the proposition very carefully. At the moment, however, they are at a decided loss to know how many instruments to provide for this season. As a result it is feared that they will almost certainly provide too few.

This state of affairs can only be remedied by the cooperation of those engaged in the honey business. For years we have needed a standard honey hydrometer in the trade. It is now to be offered at the lowest possible price consistent with the required accuracy. Prospective purchasers of the hydrometer are urged to communicate with the Fruit Branch, Department of Agriculture, Ottawa, or with their regular bee supply firms for further particulars. "Do it **now**" and insure against troublesome delay at the height of the packing and shipping season. The Department has done and is doing all in its power to ensure the smooth and effective working of the new Act. It is now up to the beekeepers and shippers to do the rest.

How I Remove Bees from Trees

By W. H. Scholz,
Nebraska.



REMOVING bees from trees is a simple operation when the entrance to the cavity is not more than reaching distance from the ground. The first requirement is either a two-frame nucleus or a healthy weak colony of bees, with a queen already established, in a hive with some comb containing brood and honey. The combs should be placed in the center of the hive and the empty space on both sides should be filled with division boards. This hive will have to be examined often to see that the increasing number of bees entering the hive have sufficient room. Additional frames of comb foundation should be added as needed.

When the hive with the bees and queen is at hand, build a stand in such a way that the prepared hive may stand with its entrance close to the flight hole which the bees in the cavity are using. Place a bee escape over the flight hole with the circular hole of the escape towards the flight hole in order to allow the bees to pass through the escape. When it is adjusted, all other holes leading into the cavity must be closed in order that no bees can possibly get in. This may best be done with cement. One may have to watch several days until all the holes are found and closed up. As soon as this is accomplished the bees are forced to enter the hive through the escape. The queen will stop her egg laying as the bees in the cavity become fewer and the supply of nectar is cut off.

It will take about twenty-one days to remove the bees and by that time there will be but few bees left with the queen in the cavity. The next thing is to kill all remaining bees and queen. To do this, fill your bee smoker with embers, put on sulphur and blow the cavity full of this smoke. In three or four days, when the cavity has aired, let the bees of the hive enter and rob out the remaining honey.

When the honey has been taken out of the cavity, the flight hole should be closed with cement to prevent other colonies from taking possession. The hive may now be moved to the location where it is to remain, and it is a good plan to put another hive containing combs on the old site to catch any returning bees. At dusk these bees may be shaken in front of their own hive.

Remember, you must have a queen in your nucleus or colony or your bees in the tree will not work through the bee escape.

Pollen Substitutes

By B. Blackbourn,
Australia.

DR. WENDELL T. CARD (p. 157, April American Bee Journal) is wrong in supposing that he is the first beekeeper to think of powdered milk as a pollen substitute. It was tried some years ago by Mr. F. R. Beuhne. Probably no country in the world has suffered so much from pollen famine as Australia. The shortage usually occurs in the early months of the year (just after midsummer), often when a heavy honey-flow is on. When the trouble was first noticed, and the cause was unknown, it was called D.T. (Disappearing Trick), the first symptoms that were observed being the sudden reduction in the population of the hives, often only a handful of bees with the queen being left.

The older text books in England always recommended that pea-flour should be supplied as soon as bees commenced flying in the spring, and although the bees readily took the flour, it is doubtful if any good was done by the practice, and it may have been positively harmful, any mortality resulting from its use would have been attributed to spring-dwindling. Bees will gather many kinds of meal, and they have even been reported to take sawdust. So long as the substance is dry and powdery, they appear to be unable to distinguish what is good for them from what is not.

Though apiarists in Victoria have been advocating research on the subject for a long while, no money was forthcoming to finance the experiments until a few years ago, when a grant was obtained from the Rural Credits Development Fund and the Council for Scientific and Industrial Research undertook the investigations in conjunction with the Victorian Apiarists' Association, the Council providing microscopes and other necessary instruments together with laboratory and space for outdoor experiments.

The feeding of a substitute may enable the bees to rear young from the egg to the adult stage, but unless the bees so reared are perfectly developed, and able in their turn to rear further generations of young bees, as well as to carry on the work in the hive and in the fields in a normal manner, the result will be simply a waste of time and material.

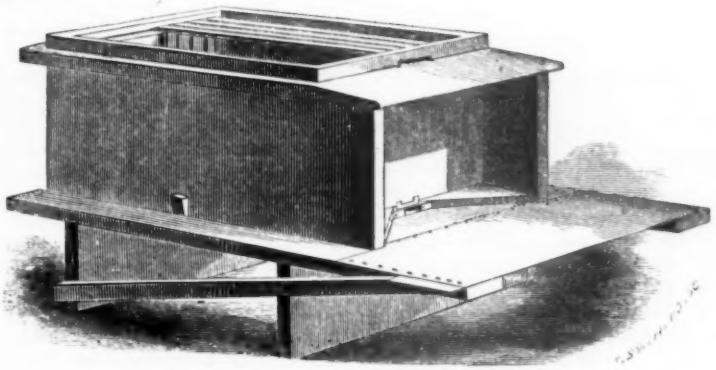
The brood food is a secretion of the pharyngeal glands located in the head, and unless all the ingredients necessary for the building up, and the stimulation of these glands can be supplied in a suitable form, the bee will be unable to feed the young larvae even though, in other respects, it may appear to be normal in its behavior. It is clear, therefore, that the problem is not so simple as it looks.

Dr. Soudek, of Czechoslovakia, has proved that the pharyngeal glands can be developed when a mixture of yeast and egg-albumen is fed, but these ingredients would be too expensive for practical purposes, even if they could be obtained in a suitable form.

Experiments are being carried on at the present time, and fairly satisfactory results have been obtained in the laboratory and insectary with a mixture of Pure Casein 5 parts, yeast (dried) 1 part, pollard 6 parts, pea-flour 6 parts, and dried milk 1 part. The next step is to experiment in the open on a large scale in some district suffering from a pollen famine, but, unfortunately (?) no such pollen deficiency has been reported, owing to the weather conditions having been favorable to the growth of pollen-producing plants.

That Top Entrance Idea

By A. H. Gates,
Washington.



Top entrance illustration from Langstroth's book, "Hive and Honeybee."

IN "ALL AROUND THE BEE YARD" for December, Cale says "the use of the top entrance interests me." The top entrance idea is not new. They used to call it "Upward Ventilation."

I have just finished re-reading Mr. Langstroth's third edition of the "Hive and Honeybee." Please turn to the chapter on wintering on page 338.

"The best Apiarians are still at variance as to how much air should be given to bees in winter and whether hives should have upward ventilation or not. If the hives have no upward ventilation then I believe that they need as much, or even more air than in summer. If upward ventilation is given, the smaller the lower openings the better as it is not desirable that there should be a strong current of cold air passing through the hives.

"In my hives all the lower passages can easily be closed air-tight and the bees allowed to go in and out through the **winter entrance** which is made at the top of the hive."

If what he says is true, and there is no doubt but what it is, the bees will stand a lot of cold, if they are **dry**. He made experiments during the winter of 1856-57 which seems to have been a very bad one. The thermometer went as low as thirty below with a high wind. Some colonies he observed were in single wall hives and they came through the winter successfully.

This is the thing that impressed me most: He says that on opening these upward ventilated hives in **zero** weather, the bees would rush up to defend their combs. Now if the bees were in a condition to do any rushing, they certainly were in a condition to move over on to new stores.

One hears of strong colonies starving within several inches of their stores. Isn't it possible these were cases where the bees had become **wet** by a sudden thaw, followed by cold weather. Bees are a sorry looking sight when wet, in warm weather, one can imagine what would happen in zero weather.

Mr. Langstroth lays quite a bit of stress on making it possible for lateral movement of the cluster. He provides this by making holes in the combs. Today, we meet this requirement by wintering in two stories or in a hive with a food chamber.

Mr. A. W. Finlay, of Canada, reports the top entrance as satisfactory for the damp winters on the coast. According to Mr. Langstroth, bees in upward ventilated or top entrance hives, should winter well in cold climates without packing. He also says his bees in insulated hives do not winter noticeably better than those in single wall hives.

Mr. Langstroth speaks of his bees starting brood rearing in January. If lack of moisture in the hives, caused by upward ventilation, will retard brood rearing until the latter part of February, at the earliest, it will please me all the more.

The Queen Reservoir Plan

By Whittman Coffey,
Texas.

I think it was Dr. C. C. Miller who first used the simple plan of putting a newspaper between two colonies which he wished to unite. This newspaper method can be used to good advantage in requeening where one has young queens in nuclei. In the management of outapiaries it is often difficult and expensive to make the trips necessary to introduce queens properly in cages; and this is especially true luring a dearth of nectar such as we often have here in the fall months when requeening is necessary.

In order to carry out this method it is necessary to create at the home yard a reservoir of queens in nuclei. The queens can be reared or purchased. Besides making introduction sure, this method also eliminates poor queens before they are taken to outyards . One trip to the outyard is all that is necessary. The nuclei are put in standard hive bodies and screened and enough taken along to replace all undesirable queens. While it might seem at first thought that this method would be too expensive, it really is the least expensive if we take into consideration the cost of making trips and the loss that is sure to come from attempting to introduce queens. There is no damage resulting to the queen from sudden stoppage of egg laying.

Increase can be made at the home yard in the same manner with less trouble and more effectively. The Brother Adam feeder is quite handy in early spring where feeding is necessary to build up those nuclei or colonies which must go into an early spring honeyflow. Colonies thus stimulated build up beautifully and will be in the pink of condition if the feeding is begun early enough.

Bees Have Their Hives

When winter, night, or storms approach,
Bees have their hives, their hiding places.
Only a wicked, carelesse man
Who hath not learned to know his God,
When storms approach finds no asylum,
But surprised with feares and cares,
Lies undefended in the night,
In the storm of God's displeasure.

—Adapted by W. H. Hull,
Virginia.

New Edition of ABC

No book on beekeeping is better known to the beekeeping public than the ABC and XYZ of Bee Culture by A. I. and E. R. Root. A new edition of that comprehensive cyclopeadia has recently come from the press. This book which has been reprinted frequently since 1877 is now in its 225th thousand and contains 815 pages. This edition has been extensively revised and includes results of much recent research.

The ABC has been reviewed so extensively and so often during the past fifty years that it is difficult to add anything to what has already been said. It is a cyclopaedia, unlike anything else and most beekeepers are already familiar with the merits of previous editions. It is published, as in the past, by the A. I. Root Co., of Medina, Ohio.

Some Honey Plant History

By Frank C. Pellett,
Iowa.

FROM the first volume of the first bee magazine until the present time, beekeepers have devoted much attention to the search of better bee plants. Since the pasture from which the honey is gathered is of fundamental importance, this has been a very natural activity. Many plants which seem promising have proved to be disappointing in the result, while others have added untold wealth to the beekeepers of the nation.

Beekeepers have been active in extending the use of forage crops which yield nectar freely, and thus have aided the growth of the agriculture of the neighborhoods in which they live. This has been especially true of alsike clover and sweet clover. With alsike the farmers were friendly, while with sweet clover the opposite was true. Sweet clover has had such an interesting history and has so greatly changed the situation of the industry that a special story is needed for its consideration.

In the first volume of American Bee Journal, the readers were urged to plant maple, locust, chestnut, and linden trees, and to encourage others to do so for the purpose of increasing their bee pasture. Alsike clover, however, appears to have been the first plant to receive the serious attention of the beekeepers. In the sixties the seed was advertised extensively in the American Bee Journal, and frequent discussions of the plant appeared in the reading columns. Beekeepers of that time had much to do with the rapid spread of that plant among the farmers.

Alsike clover is a native of northern Europe and is also known as Swedish clover. This name probably was given to indicate the country from which the plant originally came. Seed was brought to England in 1834*, and to America, in 1839, by the editors of Genesee Farmer, who distributed it to their readers. Langstroth credits its introduction to B. C. Rogers of Philadelphia, but does not say when.

In 1868, J. M. Thorburn & Co., of New York, advertised alsike, Bokara clover, mignonette, and chicory for sale. Numerous references to buckwheat as a honey plant also began to appear. Rape and sweet clover and catnip also attracted attention.

Within a few years, the interest in honey plants had developed to the point where beekeepers were making extensive plantings of anything which seemed promising. In the seventies, Prof. A. J. Cook, of the Michigan College of Agriculture, established experimental gardens for the special study of nectar yields. In this he seems to have cooperated with Prof. Beal, who wrote much about honey plants for the bee papers of that period. In 1878, the American Bee Journal published a paper prepared for the Michigan convention by Fisk Bangs, in which some interesting notes are recorded concerning this experimental work. Yellow sweet clover is reported as worthless for Michigan, while the white sweet clover is reported as one of the best honey plants. It would be interesting to know what changes in weather may have occurred between the blooming dates of the two species.

Sainfoin was reported as not sufficiently hardy. It is interesting to note that while numerous attempts have since been made to introduce sainfoin, it has met with little success in this country; whether for lack of suitable inoculation or too tender, or whether not adapted to our soils, it would be interesting to know.

This Michigan honey plant garden attracted much interest among American bee men and many plants including cleome, catnip, mustard, borage, rape, and various clovers were tried.

Mignonette was a popular favorite for a time and many plots were sown. It was much discussed in the bee papers, and one correspondent became so enthusiastic that he stated that an acre would provide sufficient pasture for a hundred colonies of bees. But since such yields as would justify the planting of mignonette for bee pasture failed to materialize, it remained only a subject of curiosity to the industry.

In May, 1877, a man named Jas. A. Simpson sent to A. I. Root seeds of a plant which he described as the coming honey plant. Since he did not know the name, a little elapsed before the fact became known that it was the figwort or carpenter's square (**Scrophularia marilandica**), and very naturally the bee men adopted it under the name "Simpson's Honey Plant." It was a native plant of wide distribution, which was attractive to the bees and easy to grow.

As a result of the publicity concerning it in the bee magazines, something of a boom developed. In 1882, Gleanings published two articles about raising plants for honey, one by H. A. March and the other by Dr. C. C. Miller, both of which discussed this plant at length. Interest continued for a number of years, and as long as honey plant gardens remained popular, it continued to be planted.

About 1885, the globe thistle (**Echinops**) was introduced into this country from France. It was brought to the attention of the beekeepers by Hiram Chapman of Versailles, New York, who planted about three acres of it. He reported in such glowing terms that the National Beekeepers' Association appointed a committee to visit his home and investigate. L. C. Root, A. I. Root, and N. W. McLain met on July 28, 1886, for the purpose of visiting the Chapman place and reported very favorably. They stated that they confidently recommended the plant as a valuable acquisition and no doubt it was, had there been any use to which the plant could be put with sufficient profit to assure its extensive cultivation. Like Simpson, Chapman received much publicity, because of his connection with the plant, for a period of several years. However, when the interest subsided, the plants became known by their proper names and the acquired ones are no longer heard.

The growing of trees for bee pasture is too slow to arouse much enthusiasm. Although, from time to time, someone proposed the planting of trees for this purpose, A. I. Root is about the only one who attracted much attention to his effort. Early in his beekeeping experience, when enthusiasm was running high, he planted a grove of basswoods. In October, 1892, he reported in Gleanings that the project had not proved very satisfactory, as the following brief quotation will indicate:

> "Our own basswood plantation has been out now twenty years. The ground is some of the poorest in the state. Notwithstanding this, however, many of the trees are a full foot in diameter. They have not blossomed as profusely, as yet, as some other basswood trees planted about the same time on the streets of our town."

With all the efforts put forward by the beekeepers to extend the area of bee pasture, but little result has been shown except in the case of the clovers and alfalfa. Alfalfa was mentioned in the bee mgazines in the early years, but seems to have made but little headway for a long time.

*A. J. Pieters, Farmers Bulletin 1151.

After it had been fully established in the irrigated regions of the West, it gradually found its way eastward. It was not until after 1900 that it was grown to any extent in the humid regions of the eastern states. When it was found that the soil must be inoculated with the peculiar bacteria with which it is associated, the proper conditions were soon provided, and alfalfa became a common farm crop over most of the northern states.

One of the interesting attempts to establish new bee pasture was that of Dr. J. L. Gandy, of Humbolt, Nebraska. Doctor Gandy was an energetic man interested in numerous enterprises, and as is so often the case in a new and growing community, accumulated much property. Among other things, he engaged extensively in beekeeping.

In 1902, he wrote an article for Gleanings, telling of his system of management and of his success with bees. In telling of the ideal beekeeper he stated that he would have 25 acres of catnip and an equal acreage of sweet clover for his bees. So much interest developed in his story of an average of 400 pounds of honey per colony, that E. R. Root and W. Z. Hutchinson visited him to see for themselves what he was doing with artificial bee pasture. The doctor explained that he did not claim to have 25 acres of catnip, but only said that the ideal beekeeper would have such an acreage. Root reported evidence that catnip had been planted along the roads for miles in the vicinity of Humbolt, but seemed of the opinion that his large crops were more the result of his large hives and normal forage than from the catnip which he had planted. Gandy had a clause in his leases requiring tenants to sow a certain amount of catnip.

In the Review, editor Hutchison wrote extensively of his visit to Gandy and told about his bloodhounds, his extensive farming interests, and other things of interest about a man who was at the moment very much in the beekeeping limelight. His conclusion, like Root, was that artificial pasturage did not contribute much to the result.

Prize Recipes From Missouri

Honey Jelly Roll—Mrs. J. S. Kinery

2 eggs
½ cup sugar
½ cup honey
1 teaspoon vanilla
1 cup flour
1 teaspoon baking powder
1 teaspoon salt
1/3 cup boiling water

Beat eggs until light. Add sugar and honey and other ingredients.

Honey Cookies—Mrs. E. H. Hildebrandt

1 cup honey
1 cup molasses
1 cup shortening
1 egg
1 pinch salt
2 tablespoons vinegar
1 teaspoon soda dissolved in vinegar
1 teaspoon ginger
½ teaspoon cloves
½ teaspoon cinnamon

Enough flour to make stiff dough. Roll out and bake quickly.

New Wisconsin Bill Would Favor Bee Men

The Grassman bill introduced in the state assembly March 14 would repeal that section of the occupational tax law on beekeepers which decrees that any equipment not disinfected or sterilized shall be assessed as a "live" hive. This bill is in keeping with a petition to the legislature by the officers of the Wisconsin Beekeepers' Association.

The measure also provides that 30 per cent of the tax shall go to the town, city or village in which the hives of bees are kept and the balance to the state. The present law provides that only 20 per cent of this tax remains in the town in which the bees are kept.

Increase and Honey the Same Season

Usually it is a mistake to expect increase and honey from your colonies at the same time. But both can be had easily in a season of a heavy flow. In 1932 and again in 1933 I had increase and honey from the same colonies at the same time.

In the spring when my colonies reach their brood rearing peak and seem to be crowded, I take two combs of brood and one comb of eggs with all adhering bees and put them in a new hive on a new stand. From every colony that is strong enough to permit it, I shake several combs of bees into the new hive and then leave them to rear their own queens. The following August, I requeen this new colony from my best bred stock.

In 1932 and 1933, these increases made fifty pounds of surplus; but this last season only two out of the five that I increased made enough surplus for winter.

On the average, one can make increase and get some honey the same season. I find these increases most satisfactory because they have fruit bloom and dandelion bloom to build with, thus saving the expense of feeding.

W. H. Scholz,
Nebraska.

Dusek Suggests Honey to Secretary

In a letter to Secretary of Agriculture, Henry A. Wallace, The Joseph Dusek Company, of Chicago, suggests that honey be included in the food disbursing orders given out by the Relief Administration. The letter follows:

"It comes to our notice in looking over the items listed in the food disbursing orders given out by the Relief Administration that one of the main articles of food—low in price but healthful and nutritious— has been omitted.

"We have reference to extracted honey which can be purchased in almost any sized container. We are prompted to call your attention to the above because of the high price of butter for which honey, we believe, would be an excellent substitute. There are large quantities of this food available in practically all markets.

"You will find beekeepers receive less remuneration for their efforts than those engaged in any other field of endeavor. Isn't this the time for them to be shown consideration At the same time, your department can save thousands of dollars in emergency relief to the needy."

Joseph Dusek Company,
Chicago.

Fasten Bottom Boards

A quick detachable method of fastening bottom boards to hives attracted attention at the field meeting of the Philadelpha County beekeepers at Fernes Brothers' Apiary. The Fernes put a heavy screw eye in the middle of the long side of the bottom board, turning it so it is parallel with the bottom. An inch above this in the hive body, they put another. Between the two they put a bolt and nut. This same arrangement is on the other side of the hive. When the bottom board is to be removed, a couple turns of each nut permits the bolts to be removed.

S. F. Haxton,
Pennsylvania.

The Orderly State

Bees observe a martial spirit—
Some keep guard within the gate,
Others, at remoter distance
Watch and ward against ill-fate.

Some within the hives, like pickets,
Check who passes in and out—
Take, as troopers mounting guard,
Their stations, turn and turn about.

Thus can many ply their labours,
As indeed the many do,
Shielded from their adversaries
By the designated few.

W. H. Hull,
Virginia.

Cheap Heat—A Simple But Powerful Distillate Burner

By J. B. Stuyvesant,
California.

THERE are times when, for boiling quantities of water, melting wax or some other purpose, one desires a more powerful heat than can be obtained from an ordinary stove. At such times some resort to the use of large furnaces, fired with wood or brush for fuel. But wood is often quite expensive and the labor of securing and feeding the fire with such fuel is too great to be worth while where cheap distillate or kerosene are available.

Several years ago a friend showed me a very simple and inexpensive burner that any handy man can easily make, which he said was largely used in one of our large oil fields where he had worked. It operated on cheap kerosene or stove distillate, which in some localities can be had for two or three cents a gallon. I have had to pay seven cents a gallon for it, delivered, but would rather pay fifteen cents than use wood or even brush which is abundant about here, as four or five gallons will run my burner all day without any labor and furnish a tremendous heat.

The Burner

To make the burner take a 1 inch street L, one end of which is threaded outside and the other inside and screw a solid cap on the outside threads. Screw a 1 inch nipple from 5 to 12 inches long (the longer will generate more gas), into the open end of the L and screw a 1 to ½ inch reducer onto the other end of the nipple. Into this reducer screw a piece of ½ inch pipe long enough to extend 6 or 8 inches outside of the fire box where it must again be reduced so as to place a ¼ inch needle valve for control of the burner. It is important to have this valve close to the burner and where it can be easily reached at all times. A steel barrel or tank of some kind should be elevated 10 or 12 feet above the bruner but at a little distance for pressure and safety and connected to this needle valve by a small pipe of ⅛ inch or less. A cut-off valve and a drain plug or valve should also be placed in this pipe so that the tank may be cut off and all drained when desirable. Before assembling the burner a 1/16 inch hole must be drilled through the street L above the cap and well up under the nipple in a way that will allow the gas to be blown straight along under the nipple, which is the generator and is to be heated by the flaming gas underneath. Some sort of a seamless leak-proof pan should be placed under the burner to catch dripping fuel and unless the fire-box is long, the end hit by the flame should be protected by some brick or plastered with mud as the flames will be very fierce.

To start the fire allow just a little distillate to run through the burner onto some old rags, paper or shavings in the leak-proof pan underneath the burner and light this. Shut the valve off again tight until the burner is well heated and quits spitting liquid. Open it up slowly as it works best until it works smoothly and is blowing a stream of fire along under the burner. There will soon be a heavy pressure of gas and a roaring, powerful flame. Care must be taken that the valve is not opened too rapidly or too much at the start or it will blow fuel or flame where it is not wanted.

Only strong new pipe should be used inside the fire-box.

Note: A soot will form inside the burner after it has been used for a time, it should be taken apart and cleaned occasionally. As they are so cheaply made it would be well to make up two and be sure that one is always clean and ready for use.

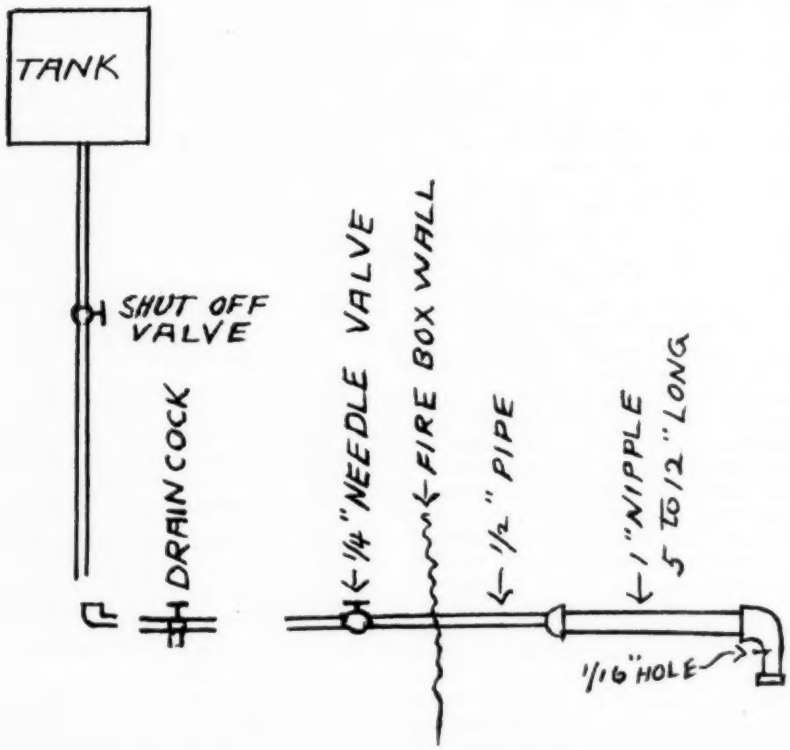


Diagram of burner described by Mr. Stuyvesant.

Inducing Bees to Draw Foundation Without a Honeyflow

By Alfred H. Pering,
Florida.

I will not claim that the method I use to secure drawn combs was discovered entirely by myself, but I give credit to Mr. Parker who had a display of honey during the South Florida Fair, during the winter of

1931 and 32, for giving me the foundation of the idea from which I developed a method of my own.

It is Mr. Parker's plan, at nightfall, to smoke and drum bees up into a hive or super containing new sheets of foundation, to disorganize the bees. They do not reorganize until morning when their force of field bees goes again to the field and they all begin to resume their regular work. I asked Mr. Parker about the queen going up too. He said he wanted her to do so because the bees stay just that much longer with her and do more drawing of the comb foundation while they are up there.

There are usually enough bees left below to care for the larvae and brood nest and there will be enough bees go back down in time to prevent brood starvation.

When the bees are drummed up and smoked out of their regular quarters, they grab all the honey they can hold and all the time they are above, they work and act just like a newly hived swarm. Their honey sacs are full and they want a place to deposit the honey and rapid drawing of the foundation takes place.

Returning from the fair in February, I began to try it out. In my first experience, the bees did not remain above long enough to do an amount of comb drawing to satisfy me. There was some comb drawing I'll admit, but not as much as I had expected.

After experimentation, I settled on the following manipulation: Select a hive that has as little unsealed brood as possible. Remove the queen excluder, if you are using one, place a hive body or super of foundation on, then drum up the bees, queen and all.

Place a bee escape board with the hole open just over the brood. Close the entrance of the hive to about an inch unless the weather is quite hot. This should all be done in the late evening.

Now, sprinkle the driven bees with all the very thin syrup or very thinly watered honey they can hold, and cover them. Use very thin syrup, just sweet enough to make them take it and want to find a place to deposit it. I have also used feeders over holes in a cover board for this feeding.

The results with this have always been very satisfactory with me. The next morning I take out the lower escape board, make sure that the queen is below, and arrange the hive otherwise as I want it. I find these new combs mighty useful.

Factors in Location

In September, 1934, Mr. Leo Traversy (p. 405, "Let the Bees Suit the Climate") says: "There is no doubt that climate, nourishment, soil and other environmental factors are the cause of coloration and various other characters of breeds of bees."

Most biologists claim that acquired characters resulting from environment, are not tansmitted to the offspring. May not the tendency of Italian bees to degenerate in color, temper and other characteristics be due to the fact that blacks and hybrids in the vicinity are more persistent in swarming and that they rear more drones?

E. S. Miller,
Indiana.

Late Fall Requeening

By W. E. Lindsay,
Colorado.

In August, Mr. Cale, in "All Around the Bee Yard" favors late fall requeening.

This tallies with my experience. With me, introduction October 10 to 20 has been successful; mostly 100 per cent.

In October, 1931, I received from south Texas 25 queens which I put in on the 10th. Every one was accepted, wintered and went into the laying season the following spring in good shape. Supersedure did not come until much later, when the queens were older.

It has seemed to me that the period of quiescence from the middle of October to April gives the queens time to recover from any setback in the mails. The bees, through the broodless period, having no desire for brood, do not crowd the queen. In my opinion, the bees in late spring and summer desire brood for rapid building up faster than the queen, introduced at that time, with her delayed powers, is capable of furnishing. Hence, the starting of supersedure. Whereas, if the queen is laying normally, the population will be normal.

Now April and May requeening with me has been good but there will be some supersedure. With summer requeening, I have always had losses. Sometimes as high as 50 per cent. The bees get tired of waiting. If the queen is long in coming and long to start laying, they are apt to get in the notion of wanting their own queen.

In summer, if there is any honeyflow at all, bees want lots of brood. In my rounds, I save all the surplus supersedure cells I find to supply to colonies which have failing or played out queens. These I call nuggets.

I keep these colonies supplied with brood from other hives to keep them feeling rich in brood in their long wait. They have more patience with a young queen until she is mated, if they have a normal amount of brood. This, of course, pre-supposes that I have kept a close watch for foulbrood and know that they are clean when I switch the combs.

Young queens are cheap in the fall and I have found they are easy to get. When I first tried late requeening, young southern queens were at the disastrously low price of three for $1.00 and even thirty cents each. Mr. Cale wonders if the breeders can furnish queens for October if any large number of beekeepers should turn to fall requeening. I would think they could.

A Czechoslovakian Book on Honey Plants

Just come to hand is a book describing the honey plant "Fiddle-Neck (**Facelii**)."

It is a sixty page paper bound book with a number of illustrations. Is written by Vaclav Pokorny and Vaclav Kolar.

Although we have books devoted to honey plants exclusively, this is the first one we have noticed which deals only with one single honey plant. From the text, which we have only been able to get through a translator due to our inability to read the Czech language, the Fiddle-Neck is one of the very best honey plants in that section.

Data on chemical content of the plant in the percentage of sugar, honey, albumin, etc. is given, as well as particulars about the honey content in comparison with other similar honey plants.

To one acquainted with the language, this book would be very valuable.

Miss Davison's Recipes

Honey Cream Filling (Cooked)

½ cup honey
1¼ cup milk
1 egg
⅛ tsp. salt
¼ tsp. vanilla
3 tablespoons cornstarch
1 tablespoon milk

Combine the honey and 1¼ cups milk, bring to boil. Combine other ingredients and beat till smooth, add to first mixture. Cook over hot water 10 minutes. Chill. Use in eclairs, cream puffs or cream cake.

Stewed Apricots

1 lb. dried apricots
1 cup honey
5 cups water
Grated rind of ½ orange or one lemon

Wash the fruit thoroughly and place in a double boiler top with the honey, water and grated rind. Cover and let stand over night. Then place over hot water and steam until tender. This makes a delicious breakfast dish.

A typical health-food store. Honey occupies about one quarter of the display space in one window. Neat, modern packages, clean and attractive interiors, and neatly uniformed clerks add to the healthful and sanitary appearance of the majority of such establishments.

Honey and the Health Food Store

By Natt Noyes Dodge,
Washington.

"A LITTLE knowledge is a dangerous thing."

This much-quoted statement may be very true in regard to honey. Particularly is a little knowledge about honey dangerous when it is held by someone who is in a position to broadcast it to the public. And the public, so difficult to educate to the truth, seems eager to believe half truths and to spread the misleading information.

Within the last few years, a wider public interest in proper foods has developed a demand for specially prepared "Health Foods." With this demand, there have arisen various packers and distributors of such Health Foods. Some of the larger concerns employ men, more or less thoroughly versed in the principles of biological chemistry, dietetics, and food in relation to health who travel about the country giving health lectures and stressing the importance of diet in health. Unfortunately not all of these lecturers are qualified to impart scientifically correct dietary knowledge. What is even more unfortunate, some of them are far more interested in developing the sale of health foods than in any philanthropic improvement of the public health.

From the preceding statement, please do not infer that these Health Foods are not all that is claimed for them. Undoubtedly the majority of them are made of the finest and most carefully selected ingredients and prepared under the direction of trained men with a knowledge of the latest findings of dietetic research. The danger lies in the fact that our Health Food friends imply in their publicity that **only** such foods and such diets as are recommended and sold by them are safe, and that by purchasing and consuming foods sold elsewhere, the public is actually endangering its health.

Health food folk are, as a rule, staunch boosters for a wider use of honey. In fact, the majority of them preach the use of no sweets other than honey and raw sugar. All of the sweetened foods which they sell, such as candy, contain no sweet other than these two. If the Health Food promoters would stop with a recounting of the virtues of honey and raw sugar, beekeepers might smile a trifle, but they would pat the health food specialists on the back and enthusiastically back them up in their campaign for unsulfured prunes and unpolished rice. However, the Health Food enthusiast does not stop there. He follows his lavish endorsements of honey with dark hints of overheating and adulteration. Only such honey as is purchased at the Health Food store may be eaten safely. Other honey is packed by ignorant beekeepers and unscrupulous bottlers. Overheating has killed the diastase; the honey has not been bee-ripened; perhaps glucose, sugar syrup, or some other similar adulterant has been added; a hundred things may have been done by man to spoil the wonderful product of the hive; why, the very cheapness of the product is proof enough of inferiority.

What is the result of such talk? People who have previously eaten and enjoyed honey, lose confidence. Perhaps, they think, there **is** something to this adulteration rumor whose whisperings they have heard from time to time. Perhaps it **would** be safer to turn to raw sugar of which they are sure, and which is not nearly as expensive as the "safe" honey sold by the Health Food people. Inquiry at the grocery store confirms their fears. "Is this diastase honey?" they ask the clerk. No, he doesn't think it is, he replies with downcast eyes—it's just ordinary honey. (Here is a new word he'll have to ask the boss about after work this evening.) "Well, is it bee-ripened honey?" Again the clerk does not know. And

Although everything that this label states is true, its implication that other honey packs do not have these more or less important characteristics serves to shake the public confidence in the honey sold over the grocers' counters.

so the former honey user shakes his head and walks out of the store. Indeed, the little knowledge which he has obtained is a dangerous thing—dangerous for him, dangerous for the grocer, and doubly dangerous for the beekeeper whose feeble efforts to educate the public to a true knowledge of the health and food values of honey seem to be opposed at every turn.

Any educational program which may promote higher standards of health among the people is commendable. But mere propaganda, even though it be based upon sound scientific principles, when warped for commercial reasons in such a way that it casts reflections upon perfectly pure and fine foods is unjust and unfair. The writer is convinced that, regardless of their emphatic endorsements of honey, and the enthusiastic boosting for such of it as they sell over their own counters. Health Food promoters are beginning to do the beekeeping industry more harm than good. They should be warned of this fact. They should be urged to consider the minor importance of such insignificant factors as diastase content, and be impressed, forcefully if necessary, with the grave injury inflicted upon beekeepers by this continual flaunting of the adulteration bugaboo. If they do not heed these friendly suggestions, they may find that they are losing the friendship of the beekeeping industry.

Nailing Entrance Reducers in Place

Mr. Rogers, of Iowa, mentions the possibility of entrance reducers slipping out of place. If two nails are driven through the reducer from the bottom so that they project out at the top about a quarter to three-eighths of an inch and the hive is raised from the bottom board in front and lowered on the reducer, the nails will be so imbedded in the edge of the hive body that even a skunk will be unable to dislodge the reducer.

E. G. Carr,
New Jersey.

Heavy Rainfall in Nebraska

V. W. Binderup has just sent us a schedule showing the rainfall this year as compared with the three previous years. 1932 rainfall during the first five months of the year was slightly over five inches; '33 was 10 inches; '34 2½ inches and '35 10½ inches. So the excess of rainfall this year is considerable in addition to the fact that last fall was rainy which adds to the moisture in the ground. This should bode well for summer and fall crops and for possibilities next year.

A Pioneer Professor of Bee Culture in the West

By N. P. Larson,
Assistant in Entomology,
Oregon State College.

Professor W. W. Bristow

THE state of Oregon and the Oregon State Agricultural college can boast of perhaps the first professor of beekeeping in the West. This man was Professor W. W. Bristow, who came to the college that was the predecessor of this great educational institution in 1884, before the period of the "Gay Nineties," and began instruction along the lines of the honeybee. He came from Missouri to be professor of bookkeeping and principal of the preparatory department. But because of his zeal toward bees and his desire to give class work along that line, he was also made professor of beekeeping. He taught the subject annually except 1889, when his other duties were too heavy.

One of his students in 1891, Prof. J. Fulton, present head of chemistry at this institution, states that in that year there were about fifteen in the class. Bristow's class text for at least part of his nine years of teaching was Thomas G. Newman's "Bees and Honey." Besides the class lectures and recitations, Bristow's students were cultured in the practical side of the game. On Saturdays a class trip was made to get first hand knowledge of the bees. Sometimes the class took care of bees for inquiring farmers and sometimes the work was done in Bristow's own apiary, situated near the present campus.

It was during the early years of Bristow's teaching here that the Italian race of bee was introduced to western Oregon. German bees were probably brought by early pioneers, at least they were here at an early date. The Italian bees were purchased from the A. I. Root Co. of Medina, Ohio, and were introduced here after 1884 and before 1889 or 1890.

In 1887 the first college apiary here was established for student instruction. This was on the occasion of the moving of the college to the present campus.

The accompanying picture, taken in 1884, shows the professor to be a tall, straight-built man. It fails, however, to show that his hair was fiery red, also his beard. This may have assisted him when the bees became angry, for he never wore a veil.

The professor's private life was no doubt a unique one. He had an entire city block near the campus. He had many hives of bees in his yard, kept buggy horses, grew his own produce and raised hay for his animals. He was a firm believer in linden trees for the production of honey, and was habitually extolling their virtues to all. He purchased a small tract of land near town and formulated plans for the making of a seven-acre forest of

lindens. This plan was never realized, because he left the school in 1894 when high school work was discontinued. He went to Portland, Oregon, where he engaged in the insurance business. He passed away there several years ago. His previous training before coming to Oregon was received in Missouri, and after graduation he was in the banking business before coming West to become the pioneer professor of beekeeping.

With the departure of Prof. Bristow the college was without instruction in beekeeping—until 1911 when Prof. H. F. Wilson began teaching the subject. Like Bristow, Wilson used his own back-yard bees for class instruction. In 1912, however, the college re-established an apiary, which has since been maintained, although the location has changed. Wilson, now state Entomologist for Wisconsin, was succeeded in 1915 by Prof. A. L. Lovett. Mr. A. B. Black taught bee culture one year, 1919, and since 1920 H. A. Scullen has taught the subject. Dr. Scullen now offers an elementary general course and an advanced course in bee culture.

Worker in Queen Cell

On May 8 a large swarm issued from a two-story standard hive. On hiving the swarm, I noticed a virgin queen being killed by the old one. On May 16 I noticed another queen crawling in front of the hive from which the swarm had issued. The day was cold and she seemed disabled. On May 17 I opened the hive and found the bees extremely cross and queenless. All the worker brood was hatched and all drones except less than a dozen. I found two empty queen cells and two ripe unopened cells. I carefully opened one inferior cell and was surprised to find a perfect dead worker bee. Being curious I opened the other and found it the same. This is a mystery to me and may be to others. The bees are pure Italians.

I believe at the time the virgins emerged the one that remained was disabled and the bees knew it and started immediately to rear another from larvae that had already started development.

Why did these bees make such a mistake? These freak cells were from specially built queen cells and not enlarged worker cells. This looks to me as though bees transfer larvae. I would like to have some bee specialists explain this act.

H. W. Palmer,
Ohio.

[Probably Mr. Palmer's explanation is correct. It is likely that no young larvae remained from which to rear a queen and the bees did the best they could with the larvae which they had.—Ed.]

Top Supering

In "All Around the Bee Yard," Mr. Cale says he has been top supering for years. So have I; ever since I ran counter to the advice to lift up the full super and put the empty one under it. He says there is no difference in the crop, and I have found this to be so.

It is easy to look in on the full super and see if it is nearly occupied and if the top combs are whitening, then I add an empty one. Of course if the bees have finished the top super and gone down, we must put the empty super down to the bees. But if we put the empty one on while they are still filling, they will go on up.

Much depends on how the honeyflow holds up. If the flow slacks or stops, and I have a lot of partly filled combs, I retain the heaviest of them for winter and spring feed and store the light ones with the empties for next year.

Top supering is a great labor saver. There is no heavy lifting.

I would like to say too that I abandoned the queen excluder years ago, for general use. I believe it is a detriment to the honeyflow. What if the queen does go into the second story? Or have brood there? Bees will crowd her down. The brood will emerge and the space will be filled with honey. If she does not go down, the combs containing honey and brood are kept with the bees for winter.

For incidental use, the excluder is very useful, for Demareeing, cell building above, or finding queens. I use the 10-frame Langstroth hive with two stories the year around. Brood in both stories most of the summer. In winter and spring, the upper story is used as a food chamber.

W. E. Lindsay,
Colorado.

"Cause of Dysentery in Honeybees"

This is the title of a reprint from the Journal of Economic Entomology, Volume twenty-eight, No. 3, June, 1935, by Erwin C. Alfonsus of the Department of Economic Entomology, University of Wisconsin.

As the title indicates, it is the report of the causes of dysentery and we reproduce its summary and conclusion as follows:

1. Dysentery of honeybees is caused by excess moisture in the feces.

2. This excess moisture is due to the consumption of dilute food or water. It is generally produced by crystallization of the stores; this divides the honey or syrup into a solid crystalline portion and a liquid portion. The liquid portion conditions an excess quantity of moisture.

3. Pollen, dextrin, minerals, burned sugar, and fermenting syrup do not produce dysentery.

4. Chilling and disturbing honeybees may cause defecation, but do not produce dysentery in a healthy colony.

5. Long confinement of bees during the winter as well as a short confinement on unripe honey, produces dysentery.

6. Water alone or dilute syrups produce dysentery in bees if absorbed during confinement.

7. Dysentery appears when the fecal accumulations reach 33 per cent of the total body weight of the bees. General defecation does not take place until the accumulation reaches about 45 per cent.

Miss Davison's Recipes University of California

Old Fashioned Honey Cup Cakes

1¾ cups rolled oats
2 tablespoons cornstarch
1/3 cup butter
¾ cup honey
1 egg
¼ cup milk
1/3 tsp. soda
½ cup flour
½ tsp. salt
¼ tsp. nutmeg
½ tsp. cinnamon
¼ cup chopped nuts
¼ cup chopped raisins

Combine the ingredients in the order given, beating well. Drop into well greased muffin tins and bake 30 minutes in a moderate oven (350° F). Makes 12 cakes.

Honey Caramels

2 cups sugar
2 cups honey
1 tall can milk
Few grains salt
1 tsp. vanilla
½ cup butter

Stirring occasionally, boil sugar, salt and honey rapidly to 250° F. Add butter and milk gradually so that the mixture does not stop boiling at any time. Cook rapidly to firm ball stage (252° F). Stir constantly because the mixture sticks easily at the last. Add flavoring and pour into buttered pan. Cool thoroughly before cutting into squares. Wrap individually in oiled paper.

Honey Peanut Spread

½ cup crystallized honey
¼ cup nucoa or margarine
½ cup peanut butter

Cream nucoa till light, add honey and peanut butter and cream till well blended. This spread will keep quite a time if held in the ice box.

Suggested Directions for Making Honey Mead

By F. Filippello, G. L. Marsh, and W. V. Cruess,
Fruit Products Laboratory, University of California.

IN ANOTHER ARTICLE in this journal we have reported upon experiments on the fermentation of diluted honey for mead. The principal conclusions from these experiments were (1) the diluted honey should be sterilized by heating to boiling and cooled to room temperature (below 90° F.) before adding yeast, in order that spoilage bacteria are killed and that the mead will clarify properly; (2) a good quality of fresh compressed yeast is satisfactory for fermenting the mead; (3) it is necessary to add to the diluted honey certain nutrient salts in order that fermentation may proceed normally, these salts being necessary for yeast growth; and (4) the addition of a small amount of a fruit acid such as citric acid or cream of tartar is desirable in order to impart a pleasing acidity. These conclusions are applied in the following suggested directions.

1. **Preparation of the Honey.** — Dissolve honey in water in the ratio of 31 pounds of honey in 8 gallons of water, or preferably dissolve honey in water to give a solution testing at room temperature 25° to 28° Brix or 25° to 28° Balling on a Brix or Balling hydrometer (obtainable from any chemical glassware supply company through beekeepers' supply houses).

Dissolve in each 10 gallons of the diluted honey the following substances:

Ammonium phosphate	2½ oz.
Potassium-di-hydrogen phosphate	2½ oz.
Citric acid crystals or powder	5 oz.

These amounts correspond to 0.15 per cent of each of the salts and 0.30 per cent of the citric acid.

Heat the solution to boiling for 3 to 5 minutes. If done on a large scale this can be done in a wooden tank by means of an aluminum or copper steam coil immersed in the liquid, and the liquid can then be cooled rapidly to below 90° F. by passing cold water through the coil. If done on a small scale where steam is not available, heat to boiling in 5-gallon tin cans or in a copper or aluminum kettle or pot. **Never use galvanized pot or kettle** as the zinc will dissolve and make the solution very poisonous. The cans of boiled liquid will cool to room temperature overnight in the air. A kettle of hot liquid can be cooled by floating in it filled cans of cold water and stirring; or the heated liquid may be transferred to 5-gallon cans and cooled overnight.

2. **Preparation of Barrels.**—Use new oak barrels or barrels that have been used for whiskey or brandy. Never use old second-hand barrels that have held vinegar, molasses, pickles, etc. Use only clean, sound oak barrels.

Wash thoroughly by placing 5 or 6 gallons of hot sal soda solution in the barrel (2 ounces sal soda or soda ash per gallon of water) by "sloshing" the hot solution around in the barrel for about 15 minutes; let stand 3 or 4 hours. Then rinse with cold water and fill with cold water overnight. Do all this before you prepare your diluted honey. Use barrels with side bungs.

3. **Fermentation.** — Place the diluted boiled and cooled honey in the barrels lying on their sides, filling them to within about 5 inches of the bung; do not fill completely as they will froth over during fermentation.

To each 50-gallon barrel add about 6 cakes of fresh, compressed bread yeast. This yeast must be fresh and sweet, **not stale.** Break up the yeast thoroughly in 1 gallon of the diluted honey. Then add to the barrel. Insert the bung in the barrel. Roll the barrel back and forth to mix yeast with the liquid and to aerate. Remove the bung and plug the hole with absorbent cotton to exclude vinegar flies, etc. Place the barrels in a warm room at about 70° to 80° F. and let ferment.

It is advisable to test the Brix or the Balling degree by Brix or Balling hydrometer (they are identical in all respects) twice a week to follow the fermentation; the Brix or Balling decreases and the decrease is a measure of the rate of fermentation. Fermentation in a warm room should be complete as indicated by no further decrease in Balling degree and absence of gas bubbles in about 6 weeks to 8 weeks.

Note: It is well to conduct similar fermentations in smaller containers also in order to have sufficient liquid to fill the larger barrels when fermentation is complete, **as barrels must be full and sealed during aging after fermentation is complete in order to prevent vinegar souring.**

4. **First Storage.**—After fermentation is complete fill the barrels completely with fermented honey from smaller containers or from other barrels and drive bungs in loosely to seal them, so the liquid will not turn to vinegar (air causes vinegar souring). Store in a cool place 3 or 4 feet above the floor about 3 weeks to let yeast settle; once a week loosen the bung to let gas escape and seal again each time.

5. **Racking.**—Now draw the settled liquid off the sediment by siphoning with a hose (barrels should have been placed on racks 3 to 4 feet above the floor so siphoning can be done), into clean barrels. Fill completely and seal. Store again for 3 or 4 months, being certain that the barrels are kept sealed and that the fermented settled liquid of like age is added once every 2 weeks to keep the barrels filled completely.

6. **Clearing the Mead.**—The mead should now have a pleasing wine-like flavor, but it is cloudy. It should be clarified by filtration or by use of Bentonite. If the mead is made on a large scale any good pulp wine filter such as the Kieffer filter (Karl Kieffer Company, Cincinnati), or the Saunders filter (Oscar Krenz Copper and Brass Works, San Francisco) may be used. It may be necessary to stir in about one-fourth ounce of Super-Cel filter aid (Johns-Mansville Company, San Francisco) for each gallon of mead before filtration.

On a small scale bag filters might be used; that is conical bags of 14-ounce duck holding 10 to 15 gallons each (like large jelly bags) and adding one-half to one-quarter ounce of Super-Cel per gallon before filtration.

The Cellulo filter (obtainable from the L. C. Millett Company, San Francisco) can be used for small quantities such as filtering 5 or 10 gallons per hour.

Bentonite, a clarifying agent, can also be used. In this case obtain from a honey supply company powdered Wyoming Bentonite. To one gallon of water add 4 ounces (one-quarter pound) of the powder slowly with stirring. Stir until it is a smooth suspension free of grit and sediment;

this requires much time and perseverance. To clarify the mead add 3 to 5 gallons of this solution to 50 gallons of mead. Stir. Let settle 2 to 3 days. Siphon off clear liquid. Filter the sediment. **Note:** We have used this method successfully on a small scale with mead made from California honey but have had no opportunity to test it on a large scale.

7. **Bottling.** — Bottle the clear mead in wine bottles and cork tightly. Store on sides, or fill into the new style wine bottles fitted with large screw top composition caps, now commonly used for wines (information from the Anchor Cap and Closure Corporation, Brooklyn, New York, or of San Francisco). Store bottles at least 3 weeks before sale to see that they are keeping satisfactorily.

Caution. — Before manufacturing mead for sale write your nearest Alcohol Administration Office, U. S. Internal Revenue Bureau, or the office of that Bureau in Washington, D. C., for full instructions on the legal requirements, permits, revenue taxes, etc. Also do likewise for your state and local liquor administrations. For home use this is not necessary.

Is Commercial Manufacture Advisable?—We believe that large processors and packers of honey might find the manufacture of mead worthy of trial and experiment to ascertain the market possibilities. Also we believe that some small producers might wish to make mead for home use. On the other hand, we doubt whether the average small honey producer would find its manufacture for sale very feasible, because of the great and constant care required and because of the rapid spoiling of the mead if not properly made and properly stored; also the legal requirements are rather difficult and irksome to the busy producer who has more than he can properly care for in merely producing honey. There are exceptions, of course; the point we wish to make is that the making of mead requires skill and care and probably its sale will not prove a "bonanza" when one considers competition with hard cider, wine, beer, etc.

Therefore, we present the information without recommending that anyone rush into the manufacture of mead and offer information based on our experiments merely for the general guidance of those who may wish to experiment.

Missouri Orchardists Use Bees for Pollen

Pear and cherry crops this season in Jackson County, Missouri, have been cut appreciably. The first two weeks in April, the temperature dropped to near freezing, preventing the bees from getting out and pollinizing the blossoms on these trees. The bees stayed where it was warm, and fruit growers who depend on the bees to provide the heavy production were just out of luck.

H. W. Guengerich, county horticulturist, feared also for the peaches and apples; but they appear to have set well. There will be a good peach and apple crop this year because orchardists saw to pollination. Those growers who did not have hives to place beneath their trees went frantically around the county borrowing hives. Some fruit men bought new hives in order to insure an apple crop. Where orchardists were unable to get hives, crops will be close to a failure. Where the hives were placed right under the trees, the bees got out enough to do their pollination work.

Jackson County hives are re-populated somewhat following last year's drought which killed off many bees.

James Southern,
Missouri.

Further Observations on the Treatment of Foulbrood Combs

By Geo. A. Walter,
Illinois.

I have read with great interest the articles on the treatment of American foulbrood in the November and December issues of your journal.

The carbolic acid screen method, which I have used several years, in a manner somewhat like that described by Mr. Beach, is practical. In my judgment it should be adopted by all inspectors of beekeeping for its use will save to the beekeeper not only the hive but the bees also. Instead of the queen and drone trap which Mr. Beach recommends using, I contract the entrance to one-half by four inches, and slip a piece of queen excluding zinc behind the lath used to make this entrance smaller. This piece of zinc can be removed and the smaller entrance allowed to remain until the colony is again well established in the clean hive.

I have treated hundreds of combs by the alcohol-formalin method and, to my knowledge, have never had a single recurrence of the disease. I attribute my success to two things that I do, which I have not read of others doing. First, I allow the infected combs to remain in the solution three and one-half to four days instead of forty-eight hours. This insures complete sterilization of the combs. Second, to make sure all cells are uncapped I go over the combs, to find any uncapped cells before soaking them in water to remove all honey, then I go over them again before placing them in the solution, and again after the combs have had all the solution removed in a honey extractor. Every suspicious looking cell gets a hard bump with an ordinary ten penny nail. If an uncapped cell of honey is found, as is the case occasionally, I have at hand a medicine dropper and some pure formaldehyde. After the cell is discovered and punctured with the nail, I douse a dropper full of formaldehyde into the cell of honey; and the formaldehyde is thoroughly mixed with the honey by agitation with the nail. I see to it also, that all the cells around the one with the honey in it, are doused with the formaldehyde to make sure they also are sterilized. Though every cell of honey which is not detected before treatment may not be diseased, yet these cells of honey escaping detection, seem to be the reason for most of the cases that recur, when the treated combs are again used in the process of brood rearing.

I had a few mild cases of disease at the close of the season this year in thirty colonies which were run principally for extracted honey. I have no way of telling whether or not the extracting combs are diseased. To play safe, I intend to treat the whole lot of six hundred or more, before using them again next summer, by the chlorine gas method. To treat so many by the alcohol-formalin method is slow and expensive.

New Iowa Bulletin On Foulbrood

This is published by the Iowa State College Extension Service at Ames and entitled "Control of American Foulbrood," by F. B. Paddock. It gives the usual suggestions in caring for bees to avoid further foulbrood and how foulbrood is eradicated, the disinfection of hives and treatment by burning, by shaking and so on. Copies of this bulletin may be obtained by those interested by writing to the Extension Service, Iowa State College of Agriculture, Ames, Iowa, for Extension Circular 12.

Washington Imports

Of the two thousand tons of honey consumed in the state of Washington every year, 75 per cent is brought into the state from Idaho, California and Hawaii, according to members of the Yakima County Beekeepers' Association, who have been reviewing the marketing situation. The Washington beekeepers insist that their own product is superior to that of California and Hawaii, but that the imported sweet is sold at low prices and has a bearish influence on the market.

I. L. Neill,
Washington.

Bees to the right of me;
and bees to the left of me.

Swipin' Ten Years Off'n My Age

By Grace Wiley Wakeman,

Saskatchewan.

WHAT do you suppose that wife of mine's gone an' done now? She's put me in wrong with my bees. Sarah wants ter go galvantin' ter see how her offspring's gettin' along an' incidentally show the city what a fine pair of dudes our youngsters has got fer parents.

So, she kept naggin' an' a-naggin' at me ter mess me up with honey an' swipe ten years off'n my age same she done herself. I keeps tellin' her it wouldn't 'pear decent fer sech a young lookin' couple ter have sech a grown-up family, but she wouldn't pay no heed nohow.

"Look'e here, Sarah," says I, "what's the matter with my looks? Ain't I good 'nough lookin' ter suit you? Ain't it 'nough fer you ter be good lookin'? Ain't no sense in both of us bein' good lookin'. It's jes' naturally too much ter expect."

"Well, you're beginning to look old though," says Sarah. "Since the children are off my hands and I have more time to read and keep up with the times, I find it isn't necessary to look your age."

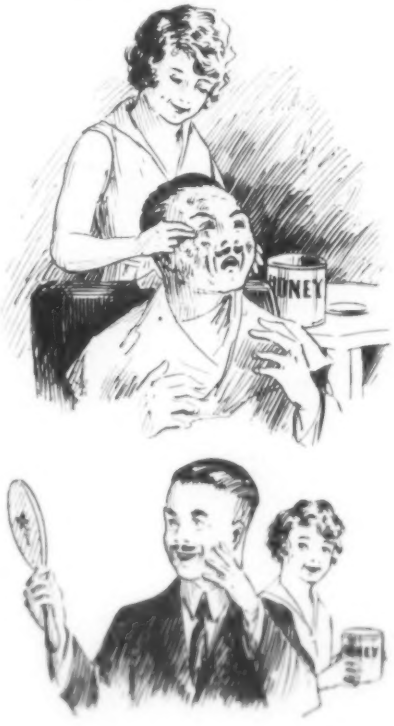
"Not necessary ter look your age? What in Sam Hill kind of a speech is that? You're always learnin' some new-fangled dope. It's a pity you didn't have five more children ter keep you out of mischief."

"Cyrus dear, listen. We know that age is not a matter of years, but of mind. A person is never old as long as he is willing to learn new things."

"Well, if that's any indication of age, you're young; you're all-fired young an' gettin' younger all the time."

Finally, I couldn't hold out against her no longer. When you've lived with a woman nigh onter twenty years you begin ter realize that you might as well try ter tear a mountain ter pieces an' build it up again bare-handed as ter try ter change a woman's mind onc't it's made up. So I consented, in order ter get rid of her.

Then she sets ter work ter 'juvinate me. She honey packs me inside



an' out until I feel ashamed ter look a bee in the face. Fust she makes me get a new-fangled haircut. But all the way home I was congratulatin' myself it weren't no kind of success, fer when your hair's been uster bein' combed ter the front fer fifty years it won't lie back worth a cent.

I thought we'd won, the hair an' I, but no siree, I weren't knowin' Sarah yit; there's no beatin' her. She jes' smiles sweet an' sets ter work ter brush honey an' water inter my hair until it's all stuck tergether an' stickin' flat ter my head. Then she kisses me on the forehead (as if she didn't know there ain't no sort o' satisfaction in bein' kissed on the head) an' says I got a scholarly brow.

Then nothin' would do but I must have a Charlie Chaplain mustache. So I gives in without a murmur. It ain't no use ter turn back.

As I said before, I don't in nowise object ter bein' honey packed on the inside, but when it comes ter packin' it all over my face an' rubbin' fingers around in it, makin' figure eights on my cheeks an' pullin' the hairs all-fired hard all the time, I couldn't keep quiet no longer.

"Doggone it, woman," says I, "do I hafter be skinned alive? Did you torture yourself like this jes' on account of your looks?"

Women is certainly funny. They'll put up with any amount of sufferin' if they think it's goin' t'improve their looks.

Well, by the time she got through with me, my face was as red as a beet an' I was all het up generally. I flops down on the nearest couch an'

the first thing I know I'm sound asleep an' snorin'.

Leastways I thought I was snorin', but then suddintly I found out that it weren't me, but it's bees. There was bees ter the right of me, an' bees ter the left of me. Wallowed and thundered. There was bees in front of me, an' bees behind me. Noble six hundred.

They was a-fightin' in my hair and a-crawlin' up my nose an' a sittin' on my ears, peekin' in ter them as if expectin' honey ter come oozin' out.

"Thank goodness," says I ter myself, "that Sarah ain't discivered that honey is good fer the hearin'. Like as not it is, but she ain't thought of it yit."

I moved cautious like an' went in search of Sarah an' the smoker. Talk about bee men showin' off at the fairs! they ain't in it with me, I'm tellin' you, as I strolled leisurely through the house with a halo of bees a foot deep.

Then I sees a note: "Cyrus dear, I forgot to tell you, but I have to address the Home Economic Society this afternoon on Honey Cookery."

When my brain registered that word "honey," I got so het up that before I could check myself I roared, "Honey h—!"

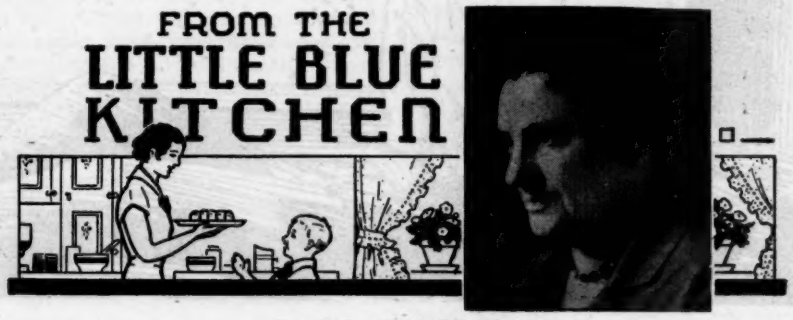
Now, I ain't given ter swearin', but my punishment was swift an' sure. That was the bees' opportunity an' inter my mouth they went. With that I lost my head, an' when you lose your head you're lost. I started ter howl an' stamp an' spit. I ain't no skunk and eatin' bees ain't in my line.

After an hour of the hottest time in my life, I was surveyin' the attacked territory in the kitchen glass, when I hears Sarah trippin' in at the front door, singin' out in a liltin' little voice, "Cyrus dear, where are you? I put it over all right. All the women are goin' to try honey yeast, can pears with honey and put honey in their Christmas cakes. Why, I tell you I've increased our honey sales by—why, Cyrus!"

An' Sarah actually screamed, a thing she ain't done for years. Then she found her tongue again, an' in a voice as sweet as honey said, "Why, Cyrus dear, what happened?"

I was a difficult subject ter look at jes' then. One eye was altogether closed an' the other fast followin'; my nose was all lopsided; my scholarly brow had a few extra intelligent bumps; my tongue was swellin' so fast that I knew if I didn't make my little speech right then I wouldn't be able to for a week, so I says: "Doggone you women anyhow! See what you went and done! You're sure swell at improvin' a feller's looks, ain't you? Ain't I a beauty? Look at me, Sarah! Ain't you jes' so plumb proud of yourself fer makin' sech a good lookin' husband? What happened? Oh, jes' nothin' 'cept my dear little bees took me fer a new kind of a bee feeder."

Sarah rose ter the occasion jes' like a lark, an' goin' fer that everlastin' jar of honey, says, "There's nothing like honey for bee stings." By that time my tongue jes' plumb filled my mouth an' was as stiff as a poker, so Sarah got in the last word after all.



By Lida Keck-Wiggins

AS September is something like an interlude between the extreme heat of August and the gentle, coolish days of early October, the housewife sometimes is at a loss to know whether to serve "summer" or "autumn" foods. With this dilemma in mind Honey Lady has collected a few honey-way recipes which may help out whether the wind blows "hot or cold."

In any weather a fruit cocktail doesn't come amiss, for one can usually utilize the fruit which is best available at the moment for this delightful introduction to a meal. Beekeepers' wives may, moreover, always use honey as the sweetener for the cocktail. Honey Lady suggests now as always that where honey is to be eaten in the raw that a mild flavored nectar be chosen. For the sweetening of cooked foods the stronger flavors are practical.

For an early September meal where a cocktail is to be the first item, one made of white or blue grapes, seeded and sliced in two, mixed with sliced peaches, carefully pared and daintily diced, and bits of orange, and to give body to the fruit cup a banana cut into small bits, is not only seasonable but delicious. The honey sweetening will give the cocktail a specially fine and different flavor, though its own peculiar taste will be absorbed in the fruit juices.

At the end of September such fruits as are then ripe in your particular vicinity may be used for a cocktail, or it is not too early to use a citrus fruit combination, cutting oranges, grapefruit, pineapple, and bananas together and sweetening with sweet clover or other mild nectar of the hives.

A baked meat good at almost any season is found in a thick slice of ham thickly spread, before placing in baker, with a mixture of prepared mustard blended with honey-sweetened pineapple juice. Place the ham in a medium sized baking pan or dish, barely cover with water and cook until tender. Place on platter; garnish with half rings of pineapple.

Steak dinners are nice for cool evenings, and it is wise to remember that almost any sort of steak will be rendered tender by brushing it with honey before frying or broiling, though the honey taste is not discernible when the meat is served.

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A Shortcake de Luxe

If you have available late ripening peaches the following recipe will be found reliable and the madeup product delicious.

Peach Shortcake

2 cups flour
Salt to taste
3 teaspoonfuls baking powder
3 tablespoonfuls butter
3 tablespoonfuls of lard (or vegetable fat)
1 cup milk, fresh or evaporated.

Directions

Dry materials should first be thoroughly blended. Then the butter and other fat should be cut in thoroughly. Then the milk slowly added. After the dough is ready, it should be divided into two portions, each shaped to fit a cake pan. The cakes should be baked about twelve minutes in a hot oven. Then the upper and lower parts of each should be separated with a fork and spread with butter. Of course this should be done before serving. Then place between each layer pealed and thin-sliced peaches, sweetened with the most delicate honey you have. A few slices of peaches laid in a neat pattern on top of the finished shortcake and these topped with spoonfuls of whipped cream make the finished product a lovely thing to look at and a delicious dessert.

A "Deliciously Different" Muffin

A delightful change from one's regulation muffin recipe is this one for Honey Corn Flake Muffins.

¾ cup corn flakes
¾ cup graham or whole wheat flour
1 cup white flour
1 tablespoonful shortening
1 pinch salt
1 egg
1 cup milk
⅓ cup strained honey
3 teaspoonfuls baking powder.

Mix melted shortening with honey, add to the egg, which has been beaten lightly, then add milk, stir in the dry ingredients, which have been previously thoroughly mixed. Bake in well greased muffin tins 20 to 25 minuts in hot oven. This recipe will make about 20 regulation sized muffins.

If you chance to want to make these muffins for breakfast, mix the batter at night and keep in a cool place until morning. Then into well greased muffin tins pour it and bake quickly while the coffee is boiling or "perking."

This sort of muffins keep for three or four days, and when reheated are just about as good as when first baked.

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A man reader has written Blue Kitchen Department for Honey Lady's Pumpkin Pie recipe, saying he has just become a member of the American Bee Journal family and hadn't seen this when, he understood, it was published previously. Honey Lady very gladly repeats this recipe for it is truly a wonderful one and hopes this reader as well as others may succeed well with it.

Honey Lady Pumpkin Pie —Honey Way

1 cup stewed pumpkin
¾ cup honey, either liquid or granulated
1 teaspoon nutmeg
1 teaspoon cinnamon
½ teaspoon allspice
¼ teaspoon ginger
1 cup milk
1 large egg, beaten and added

Stir these ingredients together briskly for two minutes. (When baking use lowest grate in oven.)

Divide dough in two parts and roll out. Fill with pumpkin mix, place in hot oven and bake 15 minutes, then turn gas down to moderate for 20 or 30 minutes or until "set."

Perhaps our gentleman reader as well as others of Blue Kitchen folk may not have a "sure fire" pie crust recipe. Therefore Honey Lady adds this one which she knows to be A-1 and insured to make lovely flaky pastry for the pie.

Sift 1½ cups flour
1 level teaspoon salt
½ cup lard

Blend this with fork and when thoroughly blended add 3 tablespoons of ice or very cold water and blend that in.

This makes enough for top and bottom crusts. Half will make a shell for a pumpkin or other open-face pie.

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An inquiry recently came to Honey Lady's desk concerning the amount of honey a cook should use when substituting for sugar in a recipe. This information has been given before in this column, but in case some one else doesn't know, Honey Lady would suggest the use of 2/3 of a cup of honey where a cup of sugar is called for in any recipe.

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Bee Line

A bee line to perpetual peace of mind is to cultivate the habit of looking on the sunny side of life. No matter how gloomy the prospect there is sure to be some little ray of light. Train your eyes to find it. It will soon become a warm glow that illuminates all you look upon.

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An old adage still as workable as when first uttered, is that "Have a place for everything and keep everything in its place." This saves many a moment and many a step for anybody, especially a housekeeper.

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A bee line to good health is to eat a little honey every day!

A bee line to saved moments is to make your head save your heels; in other words stop, look and listen and somehow out of the ether you'll often hear a still small voice giving you hints as to how to do things a bit easier than you have been accustomed to. Honey Lady once met the late Katherine Wright, sister of the famous Wright brothers, and she said her mother always worked out shorter ways of doing household tasks. Her boys followed out the idea and the airplane now surely emulates the busy bee in making short cuts!

The Courageous Heart

By Walter H. Hull,
Virginia.

Bees surpass in valor all the creatures,
None so huge and mighty that they fear
To set upon. And once the battle gage
Is taken up, how hard the fight or drear
The prospect of a final victory,
They battle on, nothing can make them yield,
Nothing but death . . . Might our hearts be as brave,
Our courage as great, each in his separate field.

Prize Recipes From Illinois

Honey Hermits

½ cup honey
½ cup sugar
½ cup butter
2 eggs
¾ cup dates (chopped)
¼ cup candied pineapple (chopped)
½ tsp. cinnamon
½ tsp. ginger
1½ tsp. soda
2 cups flour

Cream butter, sugar, and honey. Beat eggs. Have dates and pineapple chopped. Mix and shift dry ingredi ents three times. Add eggs to creamed mixture, then dates and pineapple, then dry ingredients. Bake 20 to 25 minutes in moderate oven.

Plain Honey Bread

3¼ cups flour
¼ cake yeast
1 tsp. salt
1 small potato
1 cup liquid
¾ tablespoon shortening
2 tablespoons honey

Proceed as for any other bread. Work extra well.

Honey Fudge

2 cups sugar
2 tablespoons honey
1 cup milk or cream
Pinch salt

Cook until soft ball is formed when dropped in cold water. Then beat well and pour in mold and cut in squares.

Sent in by
Mrs. Rutha King.

Greatness of the Small

They have not a little erred
Who hold that there is little strength,
Nor yet such beauty in small creatures
As in greater; —That the greater,
As the Elephant, and Horse,
Are alone the profit-makers;
That the lesser of God's creatures
Serve man only by offending—
Whereas what creature can for profit
Be compared to the Bee?

—Adapted by W. H. Hull,
Virginia.

Honey Lost in Blaze

More than $600 worth of honey was destroyed at the residence of Stanley Cox, beekeeper of Provo, when a shed valued at more than $100 was burned. The honey and the tools were burned and the loss was not covered by insurance.

Mr. Cox's small son, playing with matches, was believed to have started the blaze. Glen Perrins,
Utah.

Lives of Famous Beekeepers

By Kent L. Pellett,
Iowa.

W. Z. HUTCHINSON, 1851-1911.

I have a feeling of kind regard, in fact I might almost say, affection, for beekeepers. I like to see them succeed. I am doing all in my power to help them succeed. I wish to drive from their minds all doubts and fears, and hesitancy. I wish to inspire them with faith in their business; so that they will dare to go ahead and increase their business; and start an apiary here and another one there and make money. . . . When I am dead and gone I wish to deserve the epitaph: "He taught us to keep more bees."—W. Z. Hutchinson, during his last illness.

IT is often true than an enterprise is but the lengthened shadow of one man. But the Beekeepers' Review was more than the shadow of W. Z. Hutchinson. George W. York nearly spoke the truth when he said, "The Beekeepers' Review was W. Z. Hutchinson."

Hutchinson printed his Review in his parlor. He poured his life and a great part of that of his family into its making. In its wholehearted devotion to beekeeping and to beekeepers, the Review never has been surpassed. Of the dozens of bee papers started in the last century it was one of the very few to be made to pay without the sale of supplies as a support. Hutchinson had nothing to live on except the Review. Even his bees, which aroused in him the greatest of enthusiasm all his life, were kept to help him make a better paper.

Hutchinson's full name was William Zenas Hutchinson, but nobody called him anything but W. Z. after he was grown. He was born in New York state in 1851, and his family moved to the back woods of Genesee County, Michigan, when he was a very small boy. He stood at the window of the log cabin home and watched his father at work chopping down the maples and making a clearing. He played in the woods and felt his heart jump when he stirred up a bevy of partridges or grouse.

The wilderness forged many of those intense natures that have furnished much of the drive and peculiar genius of America. It was the wilderness that gave W. Z. much of his character. He was tall, spare and silent like a forest tree. He seldom laughed or smiled. The waters of his nature ran deep within him. He never cared much for play or amusement.

W. Z.'s father was a kind-hearted farmer who fed his cow bread and butter and sugar instead of beating her when she ran away in the woods over night. It doubtless was from his father that W. Z. inherited one of the most sensitive natures, which destined him to bear the greatest joy and the greatest pain. And somehow in that backwoods home he acquired a love of reading. He made his first money from trapping, and bought books. He read everything in the scant libraries of the neighborhood. Somebody loaned him King's bee book. After that one of his ambitions was to be a beekeeper.

W. Z. found time between school and the farm work to express a mechanical turn of mind. He made windmills and water wheels. He spent a whole summer on a saw to be run by footpower. And it worked. At sixteen he constructed a turning lathe and from it he made large numbers if old-fashioned spinning wheels and reels which he peddled from house to house. He had a good trade until the cheap goods from cloth mills drove spinning from the home.

One day he started out to take subscriptions for a magazine, offering a picture as a premium. The farmers did not care for the magazine. And as for the picture, they said they already had more pictures than they had frames. The next day W. Z. left his magazines and pictures at home, but loaded himself with picture frames and went to see the same people. He sold them frames for their spare pictures, and took fifteen dollars worth of orders the first day. He continued for three years to sell picture frames in his spare time. He tramped over every road in Genesee County.

One day in his twenty-first year he took a last load of spinning wheels to sell. Sixteen miles from home he made a sale at the home of a farmer, Clark Simpson. He asked and was allowed to stay all night. It was only three o'clock in the afternoon, but W. Z. noticed a neat row of hives in the back yard, and he hoped by staying to "talk bees." Mr. Simpson was a good beekeeper and quite willing to talk about his bees. The young man also took notice of the daughter, May.

Two months later he went to the Simpson home again to "talk bees." This time he remained two days. Often afterwards he went back, and soon he was talking love to Miss May. They were married after two years. W. Z. built a small house with his own hands on his father's farm where they began housekeeping.

And soon he had four colonies of bees. He did not have the money to buy a honey extractor, a bee smoker or other needed equipment, but he kept bees in a systematic way, and in time they gave him enough honey to buy his equipment. He subscribed for the bee magazines and kept a scrap book where he pasted every item he could find on bees, classifying it so that he could find an answer to any problem at a moment's notice.

At the end of the first season he wrote an article for Gleanings in Bee Culture, telling of his experience as a beginner. "I am a young man who has just bought and partly paid for a small farm," he wrote. "My wife and I are working hard to finish paying for our home, and we sometimes have to figure pretty close to obtain my bee fixings. In spite of the financial difficulties . . . I have prospered exceedingly well." A. I. Root, the alert editor of Gleanings, thought his experience would be of value to other beginners. He paid W. Z. for his article and invited him to write again. To be paid for an article has made a confirmed writer out of many a man with less propensity for the pen than Hutchinson. His die was cast. He wrote a regular article for Gleanings each issue for ten years, until he started his Review.

His clear acounting, his enthusiasm for his work, placed much of his writing on the front page of the magazine, were it was read first by the beekeepers. "My shop is neat, clean, and cozy," he wrote. "Increase of business compelled me to be more orderly and systematic, to have a place for everything and everything in its place. And to keep my floor, workbench, etc., all brushed up slick. I have no ambition to own a large number of bees; the height of my ambition is to keep wnat bees I do have in the best possible manner." He was selling queens and also much of the increase from his colonies, since he found it just as easy to make money from the sale of bees as of honey.

In the fall of 1878 two brown-eyed girls were born. That winter was

spent in their care. "We did nothing else, and that was enough," he wrote. He kept a sheet of paper and pencil on the organ, composed his articles to Gleanings in his mind while rocking the babies to sleep, and wrote down a sentence at a time when he had a moment to spare. It often took him several days to write a single letter.

At the close of the next season he wrote triumphantly to Gleanings that from nine colonies in the spring he had raised and sold 193 queens, had sold a thousand pounds of honey and six swarms, and had eight colonies left to winter. He had made two hundred dollars above expenses, he said. He knew, for he had kept careful books.

A sister, Ivy, came to join the twins, who now had reached the toddling age. As the family grew, so grew W. Z.'s little bee business. In the summer time he trudged two miles through the woods to the post-office at Rodgersville to mail his queens. His brother Elmer also became interested in beekeeping. W. Z. established some apiaries with him in the raspberry and willow herb region in northern Michigan.

The family now made a living in their backwoods home. But W. Z. was nursing another dream. He wanted to be an editor. His ambition was to have a magazine that would contain every month the cream of all that was being written on beekeeping. He talked of his idea. But older men were exceedingly doubtful. There were many bee papers being published. And the editors of established journals grumbled that they could not make them pay, but that they had to dig down continually in their pockets to keep the enterprises going. Not much hope for a beginner.

Still, W. Z. must have received encouragement from somebody, for in 1888 he said good-bye to his column in Gleanings. He took the family and the bees and moved to the neighboring city of Flint, where they purchased a home on the outskirts, an old-fashioned house with wide verandas surrounded by a grove of shade trees. By the time they paid moving expenses and the down payment on the house, there was left scarcely a penny with which to start the paper.

Hutchinson made a contract with a printer, and began to solicit advertising for the first issue of the Beekeepers' Review. The outcome of his little venture was on the lap of the gods. Fifty beekeepers each sent a half-dollar for a year's subscription. By dint of much effort he secured enough advertising copy from people who were willing to take a chance on the Review to pay for the first issue.

In January, 1888, the Beekeepers' Review came from the press. It was a neatly printed sixteen page magazine. Like the Hutchinson apiary, it was small. He believed in quality. Hundreds of sample copies were sent out and soon the subscriptions came pouring in. Advertising for the February issue was obtained more readily.

Then little eight-year old Ivy and her father both were taken ill with a digestive trouble. The siege lasted for six weeks. All the copy for the next issue of the Review had to be written either from a sickbed or beside one, Hutchinson explained when the magazine finally was put in the mail about one month late. He said he would hurry up the April issue and try to be back on schedule soon. But such irregularity did not please the advertisers, and the editor soon knew that he could not get enough money to pay the bills.

Publications of all kinds were being launched every day, most of them to die and be forgotten. Editor Hutchinson knew that something drastic would have to be done to save the Review from the same humiliating fate. He went to the printer and told him that he could not complete his contract, but that he would be glad to purchase the type which the printer had bought for the Review, so that he would have no loss. The printer agreed, and offered to give him time to pay for it. W. Z. set up a shop in his own home to keep the Review going. He was no printer, did not know a type-stick from a base-slug, but he would learn.

Mrs. Hutchinson saw her parlor vanish when the print shop moved in. Soon a composing stone was standing in one corner of the front room, and a type rack in another. Much of the equipment was homemade. Some of it W. Z. was able to buy on time. All the family went to work. The father set up the type for his articles and those of the contributors. It was slow work at first, but soon he began to gather speed as the type faces took on familiarity. The twins and their mother folded the magazine, stapled it, and addressed the wrappers. And the little girls, as they grew older, were put upon stools and shown how to set type. They took pains with their composition and furnished clean proofs, W. Z. bragged in the Review. He hired only the press work done, and in later years a press also was added to the equipment, so that all the work of the Review could be handled at home.

The shop was kept as neat as any other part of the home, and printers, used to the grime of their own shops, opened their eyes when they came into the Review office. J. H. Martin, the Rambler, said after a visit to the Hutchinson home that the Review office had the air of a lady's boudoir.

The Review gained in favor. Well-known bee writers, as G. M. Doolittle, Dr. C. C. Miller, James Heddon and many others came into its columns. W. Z. attracted readers with his short editorials, his careful reviews. The advertising increased and at the end of the year the editor said he had 887 paid subscribers. Not a large number, but composed only of those who really were interested in the Review, and the number was constantly increasing. He had cleared only fifty dollars above expenses, but by the end of another year he hoped to have a circulation of 2,000.

However, money did not come in fast enough to meet a payment of $150 due on the home the following summer. The usual solution in the Hutchinson household when money was short was to sell the increase of the colonies in the bee yard, but that summer nobody wanted to buy bees. At last W. Z. wrote to his advertisers. He told them he needed money. If they would pay their advertising bills in advance to the first of the year, he would be glad to discount them ten per cent. Within two weeks he had received $180 in cash and money orders. The payment was made.

A year later he wrote that he had cleared $813, and a year after that he thought the Review had paid a thousand dollars above its cost. That was not much money. But people had told him that a bee paper would not break even. And he had cut the indebtedness on his home in half. Hutchinson drummed no supplies, and pushed the sale of nothing through the Review except printing and his two books, "Comb Honey Production" and "Advanced Bee Culture." An editor should be an editor and nothing else. That was Hutchinson's idea, and he stuck to it.

He early became interested in the National Beekeepers' Association, and acted as its secretary for years. He shouldered the drudgery that somebody always carries when any kind of cooperative enterprise works. The secretary was paid fifty dollars a year. He complained in the Review that postage, supplies and phone calls cost him more than thirty dollars, so that he had less than twenty dollars for his months of work. But he kept at it.

Hutchinson made the rounds of the fairs, exhibiting for over a period of fifteen years in Indiana, Wisconsin, Illinois and Missouri, as well as Michigan. The prizes he won paid his expenses and left a little money over to take home to the family, whose growing needs pressed heavily on a struggling editor.

He took his camera to the conventions and the fairs, visited beekeepers widely in his travels, and made the Review the most profusely illustrated bee magazines then published. He often used full page halftones, and adopted a calendered paper that would print them with distinction. The expense and effort that went into the Review were not equalled by any other bee magazine until many years later.

Hutchinson was a careful student, and the infection of his personality

led bee men to follow in his trail by the hundreds. And W. Z. for years followed closely in the trail of another man, James Heddon, who preached his methods of contraction of the brood nest in the Review. The trail that Heddon blazed was a blind alley, but this was not generally realized until many years later. What insanity made anybody preach that by cutting down on the number of bees and the size of the hive the bee man could reap more honey? What insanity made anybody follow this persuasive advice?

Charles Dadant said that fecund queens were the keystone of beekeeping, and that one must have hives large enough for them to lay to the utmost. Elisha Gallup said that the whole of beekeeping revolves about the queen, and preached hives that would accommodate bushels of bees. But Editor Hutchinson said often in the Review, in effect, "Other things being equal, one queen is as good as another."

The contraction method spread all over Michigan and surrounding states. And for some reason, strange to those who practiced it, a series of short honey crops fell upon this region. The beekeepers could no longer get a harvest of honey. In 1891 Hutchinson devoted the December issue to the question, "What shall we do if poor seasons continue?" There were contributions by the leading writers on the topic announced, as was the custom. Hutchinson in his introduction admitted that he had received less than a nine-pound average from his colonies in the last four years, and said he did not understand why the change from good seasons to poor seasons had not been more gradual. Many beekeepers, including Heddon himself for a time, deserted their bees.

W. Z. felt that he had not learned as yet the true secret of financial success with bees. His eyes were open continually for a clue to this secret. He visited W. L. Coggshall of New York. Here was a beekeeper who was wealthy. On the way home Hutchinson pondered why it was that Coggshall made more money than his brothers. Then suddenly the reason came to him. Why, he kept more bees! That was the only difference! W. Z. pictured in his mind the thousands of beekeepers, who, like himself, were spending their lives with single apiaries of a few dozens of colonies, barely making ends meet, when they might be prosperous with hundreds of hives. He hurried home to preach his new thought in the Review. He made it the slogan of his magazine. He urged the beekeepers to expand their production, not to be content with a few colonies. They must conduct the honey business in a businesslike way, do things on a larger scale, if they wished to be really successful.

The contraction fever passed. Hutchinson never clearly saw its error. He acknowledged in later years that those who used large hives apparently were successful, but he did not see why. He atoned, however, for one mistake by preaching a sounder gospel, that of operations on a larger scale.

One year he came home after working at the Detroit Exposition and the Michigan State Fair without resting, and was taken ill with his old digestive trouble. The Review waited on his recovery, and was late going into the mails. And there were always problems in connection with its publication, for he was frequently ill, and the paper was then late. He asked his subscribers to bear with him. They seemed glad to overlook his weaknesses, for the Review apparently was prospering, becoming a stronger paper every year.

Ivy, then a girl of fifteen, became so seriously ill it affected her reason one summer. For a year her parents remained so closely at her bedside that the publication of the Review was a burden. Its date of appearance became a little irregular. W. Z. was called away to the fairs, leaving Mrs. Hutchinson to care for Ivy. He returned to find his wife in a state of collapse from long months of weariness and taut nerves. Her mind, too, was affected. One day the idea possessed her that the whole family was going insane. She chloroformed, to death, Fern, their five year old daughter, then tried to kill Ivy with a revolver. Mrs. Hutchinson was sent away to a sanitarium and Ivy was put in a hospital where she slowly recovered.

There were some blank pages in the Review that month. In type with a heavy black border the agonized father told of the tragedy, of the destruction of their home. But he was going on to the fairs, he said, and continue the Review. "I shall not do now what I never did before—shirk my duty. I must ask my friends to be indulgent once more while I am fitting my back to this great burden."

W. Z. went to see his wife every two weeks at the sanitarium, spending the week ends with her. She improved more rapidly than might have been expected from her derangement, and to help her forget their trouble, he took copy for the Review and type cases to the sanitarium where she set up much of the type that went into the magazine each month. He expressed his thanks for the many expressions of sympathy that came to him. And in time he could rejoice that she was able to return to their home with him again. "Of course," he wrote, "we know our home will never be what it was, but we will strive to make the most of our lives."

In spite of his trouble and his increasing ill health, he found the same delight in his bees that he had when a boy. One early spring day, after opening his hives and indulging in the joy of a day with the bees, he sat down and wrote his brother, Elmer, "This afternoon I examined a few colonies, and there was a surprise in store for me. Some of the colonies have six combs jammed full of brood, with lots of young bees hatching out. . . . You know I told you that the colonies were all strong in bees, had plenty of stores. Well, when I turn back a quilt, a puff of warm air comes up that I can actually feel in my face—just as the warm air comes up in the registers of a hot-air furnace. The hives are actually full of bees . . . it fairly staggers me to think what I may accomplish this year with forty such colonies, plenty of combs, foundation, queens and feeding. . . . "

But the editor of the Review had accomplished his last in the bee yard. In a few weeks he was in the hospital. His brother Elmer had to come to put the supers on the hives for the honeyflow. One of the twins and her husband "got out" the magazine.

W. Z. returned home that fall apparently better, was able to do much of his writing in bed. Through the winter he kept up the fight to regain his feet. In the spring an attack of bronchitis made him very weak. He felt the need of rest. "I have not done anything about the next Review," he told Mrs. Hutchinson, "but guess I will let it go this month, and maybe next."

In June, 1911, the Review did not appear. It was published in July, but its white pages were dressed in black border. It told the death of W. Z. Hutchinson.

Granulation in Glass

Granulation of honey in glass jars has done more to prejudice grocers against honey than any other single thing. I have talked to dozens of grocers who have brought out a jar of candied honey and said, "That's why I don't like to sell honey."

Proper heating will go a long way toward preventing granulation in glass. It is unfortunate that there is no sure way of absolutely preventing granulation except the use of non-granulating honey like tupelo. Nearly all honey containing cut comb will start to granulate in a few weeks no matter how the extracted honey is treated.

S. F. Haxton,
Pennsylvania.

Honey As Energy Food

Coach "Babe" Hollingbery, Washington State College football team, believes in the value of honey as an energy food and honey is used on the training table for the football men.

J. H. Sturdevant,
Nebraska.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

ITALIANIZING

I have four swarms of bees which are not pure strain at all. I wish to get them all to Italians. Can this be done by getting one tested queen and then raising queens from that swarm or would the young queens be mixed? IOWA.

Answer.—The young queens which you would raise from this tested queen would be pure Italians, but they would probably mate with impure drones. So their progeny would be hybrids, half or less, according to the breed of the males with which the queens mated. This matter of obtaining pure bees in a country occupied with common black bees is a matter of years, but it is well worth the trouble.

MULTIPLE LAYING

What is the cause of queens laying more than one egg in a cell? Sometimes as many as eight or nine in a cell. What becomes of those eggs? Will the workers remove them all, or will they leave one to a cell? What would you do with such a queen, as one is a golden Italian and a fine looking queen? TENNESSEE.

Answer.—The queens that lay several eggs in each cell are usually defective, though sometimes a young queen will do that at first and become regular later. The workers remove all but one egg and usually eat up the supernumerary eggs. Mr. Langstroth wondered often "whether the workers who are so fond of a tidbit in the shape of a newly laid egg ever experienced a struggle between appetite and duty; so that they must practice self-denial to refrain from breakfasting on the eggs so temptingly deposited in the cells."

I would recommend that you watch that queen, as she may prove worthless or drone-layer. A few weeks will tell the tale. If she does not reform, better destroy her and put another one in her placce.

STARTING NUCLEI

(1) I would like to know how to start nuclei from frames of brood. I have a black colony of bees of which are mean and I want to get rid of them, and requeen, with Italian queen. I took out two frames of brood and adhering bees, and put them in a hive over the other colony, and looked in the next day and all the bees had "beat it." Can you give me the modus operandi of this stunt? I figured I could put two frames of brood and adhering bees in a hive, and get a queen after they had been queenless a couple of days and gradually would get rid of the blacks, however, after my initial attempt I am afraid the scheme won't work. I am a subscriber to your paper, but don't find just exactly what I want in its various numbers.

(2) I had two colonies both with laying queens, today I looked at each of them and find no eggs or queen. What do you suppose has happened? I immediately put eggs in both from another hive. The bees fought me so, and flew around so fast that I could not quiet them, to look for virgin queen. Do not think it possible they have swarmed, as the hive is full of bees and gave no previous indications of swarming, and also had on a queen excluder so that the old queen could not get out. CALIFORNIA.

Answer.—(1) The trouble was that you took frames of brood with the adhering bees and placed them in hives without confining them at all. We usually confine the bees for forty-eight hours, or at least over night, after putting them in a strange hive. We also take more bees than just such as are on the comb, because we know that all the old bees will leave and take some of the young ones along with them. Dr. Miller used to confine the bees by putting a bunch of grass into the entrance and let them gnaw through it, which would require a day or two. But we lost colonies from the heat by trying this, as we are in a hotter locality than Dr. Miller was. So we prefer to put the nuclei thus made into a cellar.

(2) I cannot tell you what became of those two queens, and it looks a little strange to me. The bees fought you because very probably you did not smoke the hives at the entrance before you opened them. Many beekeepers, even good ones, neglect this. Of course you may have cross bees, but it is just that much more necessary to smoke them at the entrance before opening the hive.

You should read some textbook on bees. Bee magazines can give lots of information but they cannot take the place of a good textbook and too many people think they can learn beekeeping from a bee magazine. It pays best to read a book first.

HOW TO FIND THE QUEENS

Would you please advise me the methods of finding the queen in a beehive, where she usually is, and what she looks like? Is she more slender and longer than the drone?

I am just a beginner in beekeeping. I have "First Lessons in Beekeeping" and take the American Bee Journal. My hive is almost full of brood so I know it contains a queen but am unable to find her. WISCONSIN.

Answer.—Open "First Lessons" at page 1 and at page 7 and compare the worker with the queen, There is no chance at all to make a mistake. The drone is at page 5.

To find the queen, smoke the hive lightly at the entrance, then open it carefully, using just enough smoke to keep the bees from jumping at you. Lift the combs one after another, putting them into an empty hive after examining each. The queen usually keeps herself on the brood combs. She dislikes light and tries to hide. The time to seek her is during the warmest part of the day when the worker bees are mostly in the field. When you lift a comb, look on the opposite side to you first, as she will run from one comb to the next readily, and if some one else helps you it will be easier to find her, as each of you will examine one side.

If your bees are the common black bees, you will have a little more difficulty than in finding an Italian queen, as the Italians are much quieter on the combs.

FUMIGATING SECTIONS

I have quite a lot of sections partly filled, some sealed and some not, also some sections of comb. I also have quite a lot of honey in sections.

(1) How am I to keep the moths out of this?

(2) If by fumigation, what with and how long?

(3) Will fumigation injure the honey for table use?

(4) How long will honey keep?

I can not find anything on this in the Journal or my bee books. IOWA.

Answer.—(1) If you have kept these combs all winter in a dry, cold place, there is no danger of moths, provided you keep them away from exposure. If you wish to keep them, from the time of taking them off till you sell them, fumigate them.

(2) Burn sulphur. Paddock writes to use ¼ ounce for each cubic foot of space. That would mean a pound for each 64 cubic feet of space. Place it under the combs, with an empty space for the flame. Or use carbon bisulphide, in some small vessel or poured on a rag, on top of a pile of combs, ⅛ ounce per cubic foot. In each case the combs must be kept well confined, so the air will not prevent the action of the drug. Leave them enclosed a half day or more. Repeat operation a few days later to kill the eggs that may have hatched.

(3) Not in the least.

(4) If kept in a dry place, honey will keep as long as you care to retain it. It gets darker in color, with age, but it takes years to effect a change.

RETURNING SWARM TO PARENT COLONY

(1) When a colony swarms and one desires no increase, is it practical to cage the queen from the swarm that issued and give the bees back to the colony from which they came? If not, why not?

(2) When is the best time to introduce queens?

(3) Does it make any difference in the time of requeening if one wants increase or not? If so, why? NEBRASKA.

Answer.—(1) Caging the queen may not prevent swarming at all because the colony will still be powerful and they may swarm with one of the young queens raised. If you can remove the cause of swarming, caging the queen may help.

(2) Any time when bees are flying will do to introduce queens, but the best time is when bees are harvesting honey, because they are more peaceable then.

(3) If you make increase, that is a good time to requeen. If you requeen at swarming time, the bees may rear queen cells and swarm with the new queen. They often do that when they dislike their new queen, instead of killing her. So it is better not to requeen at swarming time unless you make increase at the same time.

Flasher Light Doubled Honey Sales

W. P. Service,
Colorado.

A grocer in California found that sales of honey in glass jars doubled after he included an electric light with a flasher disc in his counter display.

The jars of honey were placed on the end of a counter. Running up from beneath was an electric light connection and a flasher disc, costing around 30 cents. This was placed in the socket with the lamp to cause the illumination to come on intermittently. The jars surround the lamp so that the light shines through them and serves not only to draw attention to the display but also to disclose the clarity of the product.

Many a beekeeper might take the tip and rig up such an arrangement for his roadside display. At night, it would be especially effective.

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Four pages. Cover in four colors. Explains fully but briefly the value of honey, its uses, and gives a few recipes. Name and address of beekeeper with honey prices if desired. Fits ordinary envelope. Sample free.

Prices postpaid with name and address, etc.:
100, $2.00; 250, $4.25;
500, $7.50; 1000, $11.50.
Each additional 1000, $9.75.

Eight Page Honey Folder

"Sweetheart of the Flowers" Short description of what honey is, how produced, harvested. How to keep it, and other data of general interest. A full page of honey recipes included.

Prices

100	$1.00	250	$2.50
500	4.50	1000	8.50

Extra for printing your name and address: 250 or less, 95c; 500, $1.25; 1,000, $1.90.

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American Bee Journal . · Hamilton, Ill.

Wabash Valley Round-Up of Illinois and Indiana Beekeepers, Newport, Indiana, Saturday, September 14.

Program

10:00 a. m.—Address of Welcome, S. J. Brown, agricultural agent, of Vermillion County, Indiana.

10:15 a. m.—Demonstration showing various steps in section and super preparation, Clinton Walthall, Newport. Sections and foundation furnished by A. I. Root & Co.

10:30 a. m.—"Comb Honey or Extracted?" by Charles Kruse, Paris, Illinois.

11:00 a. m.—"Importance of Requeening," James E. Starkey, chief apiary inspector, of Indiana.

11:30 a. m.—"Practical Queen Rearing," Herman McConnell, Robinson, Illinois.

12:00 n.—Catfish lunch and accordion music by beekeepers of Clinton, Indiana.

12:30 p. m.—"Beekeeping Outlook," G. H. Cale, editor of American Bee Journal.

1:00 p. m.—"Honey Plants of the Wabash Valley," L. R. Stewart, Newport.

1:15 p. m.—"Cost of Producing Honey," Carl Killion, Paris, Illinois.

1:45 p. m.—"Preparing and Marketing Comb Honey," W. R. Stephens, Wingate, Indiana.

2:15 p. m.—"Illinois Inspection Along the Border," Herman Denhart, Illinois deputy inspector, St. Joseph, Illinois.

2:30 p. m.—"The Crop This Year and Last," discussion led by Wm. Pogue, vice-president of the Indiana State Beekeepers' Association, St. Mary's-of-the-Woods, Indiana.

3:00 p. m.—Practical demonstration of removing the crop with carbolic acid, Ben H. Wilkins, deputy inspector and L. D. Murray, Eugene, Indiana.

Morgan-Scott Group

THIS picture was taken by Hoyt Taylor at a basket dinner picnic at the Morgan-Scott Beekeepers' Association of Illinois which met at Florence on the Illinois River west of Jacksonville in June. The feature of this picture was a meal in which the food was made with honey. The picture was sent to us by Wesley W. Osborn, of Hillsboro, Illinois.

It represents a new trend in the gatherings of beekeepers in which business and pleasure are combined in such a way that the crowd is always out.

The old type of meeting in which long lectures on beekeeping practice formed the main program, is on the way out.

3:15 p. m.—Practical extracting demonstration, Delmar Stephens, Perrysville, Indiana, and Al Coldstalk, Veedersburg, Indiana.

3:30 p. m.—"Why I Keep Bees," discussion led by James Peveler, Montezuma, Indiana.

Contests

1. Best cake, any kind, containing honey. First prize, box Hudnut face powder, donated by Winters Drug Store, Newport; second prize, pair ladies silk hose, donated by Foos Department Store, of Newport.

2. Best case (24 sections) white comb honey. First prize, three queens, donated by Herman McConnell, Robinson, Illinois; second prize, five gallons gasoline, donated by Arthur Bishop's Filling Station, Newport.

3. Best case (24 sections) amber comb honey. First prize, "The Honeybee" by Langstroth and Dadant, donated by Dadant and Sons; second prize, ten sheets brood foundation donated by Walter T. Kelley Company, of Paducah, Kentucky.

4. Best dozen 16-ounce jars white honey. First prize, three queens donated by Herman McConnell; second prize, ten sheets three-ply foundation, donated by A. I.. Root Company.

5. Best dozen 16-ounce jars amber honey. First prize, ten sheets crimped wired foundation donated by Dadant and Sons; second prize, ten slotted bottom bar frames donated by Dadant and Sons.

This will be a practical field meet with every talk illustrated in the bee yard and ample time allowed for discussion. There will be a basket dinner. Wabash fish and trimmings will be supplied by the host. The meet will be held rain or shine. A half million dollar building available in case of rain.

Mr. Stewart, the host, is secretary of the Vermilion County Beekeepers' Association and a well-known writer and speaker on beekeeping topics and one of the most successful honey producers in Indiana. He has a model apiary of one hundred colonies at his park-like place in Newport. Bring the family—entertainment for the ladies and playground for the kiddies.

Host will be assisted by S. J. Brown, Clinton Walthall, V. N. Asbury, Kendal Jones, and James Thomas.

A card of your intentions will greatly assist us in our fishing.

National Convention October 7-10

October 7-10 the joint convention of the American Honey Institute and the American Honey Producers' League will be held in Detroit. The Michigan beekeepers are very enthusiastically preparing special features of entertainment. They will make the Detroit meetings well worth attending. A complete program will be ready September 15 and will be published in detail in the October issue. Every beekeeper should plan to attend.

Washington Beekeepers' Picnic

Beekeepers from the east and west side of the state held a picnic recently at Lake Tipsoe, at the base of Mt. Rainier.

C. W. Higgins, of Wapato, president of the Yakima Valley Beekeepers' Association, presided. A. E. Fernan, of Ohop, president of the Pierce County Association, spoke on conditions in the industry on the west side of the state.

Ernest Sires of Stanfield, Oregon; Daniel Wurth, of Toppenish, discussed. marketing problems, and E. B. Ellingson of Parkland spoke on legisative affairs.

Reports given at the meeting indicated that a smaller honey crop than at first anticipated would rule in the state. Stabilization of prices on honey was urged by many of those attending. I. L. Neill.

Wisconsin Association Petitions for Laboratory

Members of the Wisconsin Beekeepers' Association have petitioned Congress for a $25,000 appropriation for the establishment of a bee culture laboratory in the North Central states and have passed a resolution urging Wisconsin officials to establish a uniform method of disease eradication. The action was taken at the association's summer convention held at Wausau, Wisconsin, July 25-26.

To be similar to those now established in Louisiana, Wyoming and California, the proposed laboratory has been conceded to be of material benefit to beekeepers of the north central region by Secretary of Agriculture Henry A. Wallace. If the federal Department of Agriculture has enough money during the fiscal year beginning July 1, 1936, the laboratory will be established, Wallace recently said.

But Wisconsin beekeepers are seeking, through their petition to Congress, to obtain the necessary $25,000 as a special appropriation; so establishment of the laboratory need not hinge on Department of Agriculture funds.

Professor H. F. Wilson of the state entomology department, gave the principal address of the convention. He predicted that beekeepers would eventually be subject to production control along AAA lines and urged beekeepers to increase their production so the price of honey would be lowered and consumption increased. He also stressed the necessity of educating farmers and fruit growers to the value of bees in cross-pollination in an effort to stop the practice of spraying trees during the flowering period.

Dr. A. A. Leibold, with the W. F.

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15% discount to dealers.

For gentleness and thrift there are none better. I use your queens exclusively for breeders.—Victor D. Sutherland., Va.

I have been buying this breed from Sturges, Sussex, Eng. But unfortunately, this gentleman has passed on, so I'm unable to procure any more. So I should like to get the original from you as I like them very much. They are the best breed I have.—J. W. Edwards, England.

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Straub & Co., of Chicago, also urged improved production methods that would make possible a lower price and increased production of the product. At the present time the annual per capita consumption is only a pound and a half, he told the delegates.

A recipe contest was conducted for women in which Mrs. Charles Roy, Sparta, received first prize. Second prize was won by Mrs. William Michaelson, Arkansaw, and third by Mrs. Frank E. Greeler, Neillsville.

A feature of the dinner meeting following the Thursday business sessions was a blunder story contest. First prize for the greatest blunder in his beekeeping experience was awarded to Frank E. Greeler, Neillsville. George Jacobson, Kaukauna, placed second, and Julius N. Roy, Fenwood, third.

The convention program was arranged by the Marathon County Beekeepers' Association. No election of officers was held. The board of directors are to choose the place of the next meeting, invitations being received from Wisconsin Rapids and Waukesha.

Illinois Beekeepers Organize District Association

A beekeepers' meeting was held at the apiary of Reginald Bean, Mt. Vernon, Illinois, on July 26. A district association was organized composed of Jefferson, Washington, Clinton and Marion counties. The following persons were elected officers: Mr. Reginald Bean, president; Mr. Otto C. Meier, Hoyleton, vice-president; Mrs. Xavier Kiefer, Belle Rive, secretary-treasurer.

Mr. C. L. Duax, chief apiary inspector, was the main speaker of the meeting. Mr. Ora Funkhouser, deputy inspector of Eldorado, also talked on "Colony Management for the Honeyflow." Thirty-five persons were present and all enjoyed the meeting. Refreshments were served at the close of the meeting.

Reginald Bean,
President.

Piatt County Beekeepers Have Successful Meeting July 20, at Monticello

Piatt County Beekeepers held one of the most successful meetings in the history of that organization.

Honey and its value to the human race was the main topic of discussion. "Honey, Nature's Own Sweet," which had been in existence thousands of years before sugar was discovered, was ably taken care of by Miss Hepler home advisor, in a talk on "Sweets in the Home."

Mrs. Ralph McInnes, wife of Piatt County's largest beekeeper, gave a very interesting talk on how the housewife can use honey in the home. She gave directions for the cooking and canning of fruit with honey instead of sugar.

D. C. Evans, president of the Macon County beekeepers, of Decatur, gave a splendid talk and demonstration on "Salesmanship and Selling Honey."

The Olson Sisters, trio from White Heath, gave several splendid songs which were greatly enjoyed.

A big central Illinois picnic for the beekeepers was planned in conjunction with the Decatur association. Features will be music, speaking and a big basket dinner at noon. The picnic will be held at the home of Inspector Mussulman, southeast of Oreana, date to be announced later.

Ralph McInnes was elected vice-president of the Piatt association to succeed C. W. Chambers, of Pierson.

Mrs. Ralph McInnes was elected as hostess of the local association.

One of Illinois' largest beekeepers present at this meeting, said it was the best meeting he had ever attended. Beekeepers were present from Cisco, White Heath, Onarga, Monticello, Decatur and DeLand.

Willard W. Smith.

Summer Meeting in Manitoba

The summer meeting of the Manitoba Beekeepers' Association was held near the boundary between Manitoba and Minnesota at Letellier on July 24. The weather was very fine and upwards of 350 people were in attendance. The prospects for a honey crop at this time of the year are good in Manitoba and all the beekeepers seem to be in good spirits. During the past two weeks we have had an excellent flow in Manitoba, which has been continued without interruption of even one day, which is unusual.

A. V. Mitchener.

Report of Massachusetts Meeting

Cloudy skies and occasional rains greeted the beekeepers of Massachusetts who gathered at the Massachusetts State College on Thursday, July 25 for their all-day program during Farm and Home Week.

Mr. F. R. Shaw, of Massachusetts State College, who is carrying on while Professor C. R. Kellogg is in China, spoke on the "Relation of Development of Bees to European and American Foulbrood." He showed by charts the changes in the food supplied to the larvae in relation to the age by days of the larvae from egg stage. The egg hatches in three days and the larvae live on a diet of protein and fat, the food being increased in honey content up to the fifth day, when it was found to be maximum. The larvae become quiescent at the end of the eighth day and are sealed over. American foulbrood shows up at the seventh or eighth day and attacks the larvae during the period when the sugar content in the food supply is decreasing from its maximum very rapidly. European

foulbrood attacks the larvae at the third or fourth day.

Dr. James I. Hambleton, Senior Apiculturist at Washington, D. C., was the next speaker on the subject "Bee Diseases." He explained the results of the Hutzelman solution and showed on the blackboard the difference between alcohol-formaldehyde solution and soapy water formaldehyde solution when used in treating infected wax. The chlorine gas treatment was explained and that also was worthless when it was discovered that after the chlorine was washed out of the chlorine-treated cells by water, the spores of foulbrood would grow beautifully. By hatching the spores in test-tubes, it was found that many spores would hatch out in twenty-four to forty-eight hours, fewer in a longer time and a small number of spores in thirty days' time which would be after the larvae infected had become by age immune to the disease. He emphasized the importance of burning all bees and frames and honey in a hive found to be infected with foulbrood, and a thorough washing with strong soap or lye inside and outside the hive body, bottom board, inner and outer covers as the best and cheapest method to control diseased colonies. He also went into detail regarding European foulbrood, para-foulbrood, nosema and other diseases.

Dr. J. H. Merrill, of Raynham, Massachusetts, who was the first state apiarist in Kansas, was in his usual happy mood on the subject "Bee Disease Control and Notes on Inspection Work in Kansas." He told of the many varied experiences of his inspectors and of their troubles out of which grew a deep respect for the bee inspector in Kansas. When it was found that the inspector was as eager to help as to condemn and burn, there was a desire to take his advice and to clean up on first symptoms in single colonies rather than delay treatment of the case until it had got out of control.

President G. A. Meigs talked briefly on the advantages of the Massachusetts Federation of Beekeepers' Associations to beekeepers of the state who are not members of local associations. Very encouraging at this time of the year was the large attendance which held throughout the Association meeting until long past the dinner bell. Two new associations in the western part of the state will very soon affiliate and further strengthen the Federation.

Dr. Hambleton took as his subject for the afternoon "Costs Involved in Beekeeping" and he showed by statistics the losses to incomes when production costs of honey vary from thirty-five cents a pound to six cents a pound.

Professor A. M. Davis gave a very fine talk on "Trees of Massachusetts" with reference to their honey value.

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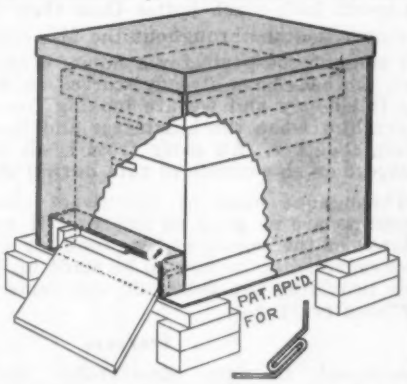

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Crop and Market Report

Compiled by M. G. Dadant.

For our September Crop and Market page, we asked reporters to answer four questions and a fifth one which had to do with suggested prices of honey. We are giving opposite prices which have been suggested by reporters all over the country. Please note that these prices are not recommended prices by the writer but suggested and recommended price averages as sent in by reporters.

We believe they give a pretty good idea of just what the beekeeper is thinking about and what the conservative beekeeper considers his honey is worth and according to the yield, just what he should get for it.

Crop Compared to 1934

In the first place, let us say that the honey crop throughout the country has been a disappointment from what was anticipated six weeks to two months ago. At that time it looked like the honey crop was far in excess of 1934 practically all over the entire United States. Since that time, however, the actual harvest has come and in many cases it is a disappointment. If you will refer to the attached chart, you will notice that there are very few states in which the percentage of crop is much larger than it was a year ago. Roughly speaking, these sections are the northern Atlantic coast region—Georgia, Florida and the northern sections of Michigan, Wisconsin, Minnesota and the Dakotas.

Naturally, California which had almost a total failure last year, has very much more honey than a year ago. Some other sections which will yield just a little bit more are Utah, Nevada, New Mexico and perhaps Texas.

On the other hand, the central western states and plains are falling down very badly and it will take a big fall crop in many sections to make up the total amount of honey that was produced last year throughout this region.

Prospects Balance of Season

However, there is a possibility for a fall crop and the prospects look much better than they did last year. In our own section throughout the Mississippi Valley, there are elegant prospects for a honey crop. As a matter of fact, the bees have already started on August 15 gathering fall honey and we are looking for something like a heavy flow when the heartsease and Spanish-needle both bloom together. An early frost is all that will ruin the prospect or else excessive rain during the harvest.

Throughout most of the sweet clover regions, the prospects are as good as last year if not better for the balance of the season and we look for some of the shortages reported up to now to be made up before the season ends providing the frosts do not come too early in the northern regions.

Increase

Although to date considerable increase has been made by some of the larger producers, all in all the increase is not excessive. Many are only making up previous losses. We believe that the chief increase has been on the part of the big producer and on the part of the new man who is just starting in. There has been a heavy impetus given to the small land owner going into side-lines like beekeeping and undoubtedly in three or four years, this may cut some figure in the honey crop although likely all of this honey will be disposed of in a local way or used in the home.

Buyers

Buyers already are active and naturally are trying to buy just as cheaply as they can get it. As a consequence, prices are very low in many instances. We have heard of prices offered as low as 4 cents per pound for good white honey with probably the average running around 5 cents per pound f.o.b. shipping station. This is almost one cent per pound lower than the average of last year, although there was some cut prices offered also in August of 1934.

Outside of the state of California, we do not know that there is a great deal of honey being sold at sacrifice prices. As one New York reporter writes us, it all depends entirely upon how the California crop is disposed of as to whether the balance of the country can hold its market during September. We believe this is exactly right. While the Californians were disappointed in the crop this year since they had anticipated a bumper flow, still there is so much more honey than there was a year ago, that any dumping of this honey on the markets may unsettle the entire market for two or three months before the surplus is moved off.

This writer does not believe that the total crop for the United States until August 20 will be very much in excess of what it was in 1934. What comes after that is a question although it does look like there will be considerably more honey produced in the late summer and early fall than there was in 1934.

However, we do not see where there should be any great slump in the price of honey over last year and our idea is that a price approaching at least 6 cents per pound for good white honey should be obtained by the western producer. Naturally, the eastern man who has his own market will be able to get a proportionately more desirable price.

It is absolutely true we believe that many of the central western producers who have been furnishing bakers, are going to find themselves short of honey very quickly this year owing to short production and are going to have to search outside for honey. This demand for honey, however, will come later on and does not have any reaction on the price at present. We are far from pessimistic that the present crop will move before the 1936 crop is on hand and at satisfactory prices. On the other hand we are optimistic about the 1936 crop prospect in view of the fact that there have been heavy rains everywhere.

Readers will perhaps be interested in our editorial on the honeyflow this year and the effect of the heavy rainfall.

Bear in mind that the prices as suggested in the accompanying table are the result of a conglomeration of averages as sent in by different reporters and by different other producers during the month.

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	Crop Compared to 1934	Prospects Balance Season	Increase	Buyers?	Offers	SUGGESTED PRICES — F.O.B. SHIPPING POINT											
						C/L White Extracted	C/L Amber Extracted	C/L No. 1 Comb	10-lb. Retail Extracted	5-lb. Retail Extracted	10-lb. Bulk Comb	5-lb. Bulk Comb	1-lb. Jar Retail	Comb Section Retail	Comb - Case to Grocer	Discount to Grocer	Discount to Jobber
NEW ENGLAND	100%	90%	10%	No	------	------	------	----	$1.60	$ .85	----	----	$ .25	$ .25	$4.00	$ .25	$ .35
NEW YORK	75%	90%	10%	No	------	.07	.07	$3.00	1.30	.75	----	----	.25	.25	4.00	.25	.35
NEW JERSEY, DELAWARE, MARYLAND	125%	90%	----	---	------	------	------	----	1.50	.85	----	----	.25	.20	3.50	.20	.30
WEST VIRGINIA, VIRGINIA	110%	100%	----	Yes	.07	------	------	----	1.25	.70	1.35	.75	.20	.20	3.60	.20	.30
NORTH CAROLINA, SOUTH CAROLINA	60%	60%	----	---	------	------	------	----	1.30	.70	1.40	.75	----	----	----	----	----
GEORGIA	150%	100%	20%	Yes	.05-.06	.07	.05½	----	1.25	.65	1.35	.75	.25	----	----	.20	.25
FLORIDA	125%	100%	5%	Yes	.05	.06	.05½	----	1.20	.65	----	----	.25	----	----	.20	.30
ALABAMA, MISSISSIPPI	95%	80%	10%	---	------	.07	.05½	----	1.25	.75	----	----	.20	----	----	.20	.25
KENTUCKY, TENNESSEE	85%	90%	No	---	------	------	------	----	1.45	.75	1.70	.90	.20	.25	4.80	.20	.25
ARKANSAS, LOUISIANA	25% S 100% N	70%	No	Yes	.06	------	.06	----	1.00	.60	1.50	.80	.20	----	----	.20	.30
TEXAS	100%	100%	5%	---	------	.06	.05	----	1.00	.55	1.10	.60	.25	----	----	.20	.30
NEW MEXICO, ARIZONA	100%	100%	----	---	------	------	------	----	.90	.50	----	----	----	----	----	----	----
PENNSYLVANIA, OHIO	65%	100%	5%	---	------	.07-.08	------	----	1.25	.75	----	----	.20	.20	4.50	.20	.30
MICHIGAN	110%	110%	15%	Yes	4¾-5½	6½-.08	6½-.08	----	1.25	.65	----	----	.20	.20	3.75	.20	.30
WISCONSIN	100%	100%	15%	Yes	.06	.07	.06½	----	1.10	.60	----	----	.20	.20	3.75	.20	.30
MINNESOTA	S 90% N 130%	100%	10%	Yes	.05	6½-.07	.06	----	1.15	.65	----	----	.20	.15	3.40	.20	.30
INDIANA	65%	80%	10%	Yes	.05	.07	.06	----	1.25	.65	----	----	.20	.20	3.75	.20	.30
ILLINOIS, IOWA, MISSOURI	65%	150%	10%	Yes	.05	.06	.05½	----	1.25	.65	----	----	.20	.20	3.00	.20	.30
NORTH DAKOTA, SOUTH DAKOTA	125%	100%	10%	Yes	.05-5½	.06-6½	.06	----	1.25	.65	----	----	.20	.20	3.50	.20	.30
NEBRASKA	100%	100%	10%	---	------	.06½	.06	----	1.25	.65	----	----	.20	.20	3.25	.20	.30
KANSAS, OKLAHOMA	50%	100%	----	---	------	------	------	----	1.40	.75	----	----	.25	.20	3.60	.20	.32
MONTANA, WYOMING, COLORADO	90%	100%	----	---	-- --	.06	.05½	----	1.10	.60	----	----	.15	.15	3.00	.20	.30
IDAHO	60%	100%	----	Yes	.05	.06	------	----	.90	.50	----	----	.20	.17	3.00	.20	.27
UTAH, NEVADA	110%	80%	----	Yes	.05	.05¾	------	2.75	.85	.45	----	----	.20	.18	3.10	.20	.26
WASHINGTON, OREGON	85%	100%	15%	---	------	.06½	.05½	2.75	.95	.55	----	----	.20	.20	3.25	.15	.25
CALIFORNIA	150%	-----	----	---	.04-4¾	.05¼	.04½	2.50	.85	.50	----	----	.20	.20	3.75	.15	.25
BRITISH COLUMBIA	115%	-----	----	Yes	.10	.10½	.10	----	1.50	.85	----	----	.25	----	----	----	----

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ITALIAN Queens. Northern bred, for Northern conditions.
Eugene Gordon, Hershey, Nebraska.

ISLAND BRED dark Italian queens. $5 each. Choicest, $10. Send check or money order. First write Bee Culture, Washington, D.C., for permit to import queens. See ad in Dec. A.B.J. E. L. Sechrist, Papeete, Tahiti.

THREE-BANDED ITALIAN queens that produce real honey gatherers and are gentle to work with. Alamance Bee Company, George Elmo Curtis, Mgr., Graham, North Carolina.

REAL PETS—Gentlest Bees Under the Sun. Through select breeding and inbreeding I have developed bees that can be manipulated under all weather conditions without smoke or veil. Yellow in color and will gather as much honey as busy bees can do. Satisfaction guaranteed or money refunded. Price 75c.
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GOLDEN ITALIAN QUEENS the rest of the season at 50c each, any number. The same high bred quality, noted for their gentleness and honey gathering. They get results. Try and be convinced. E. A. Simmons Apiaries, Powell Owen, Mgr., Greenville, Ala.

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David Running, Filion, Michigan.

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MICHIGAN'S FINEST clover honey. No disease. Overweight. New 60's. 7c.
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HOWDY'S HONEY—Comb and extracted, best quality Michigan clover honey. Also some light amber and capping melter extracted. Howard Potter, Ithaca, Michigan.

NEW CROP CLOVER HONEY. Write for quotation before buying.
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FOR SALE—Comb and extracted honey.
H. G. Quirin, Bellevue, Ohio.

CHOICE WHITE CLOVER HONEY in 60-pound cans. J. F. Moore, Tiffin, Ohio.

NEW COMB AND EXTRACTED.
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WANTED—Light and amber honey.
Riverside Apiaries, Russell, Illinois.

WANTED—Extracted Honey. Send sample and price delivered to T. W. Burleson & Son, Waxahachie, Texas.

WANTED—HONEY and BEESWAX. Beekeepers will find it to their advantage to communicate with us. Please send samples, state quantity available and prices. CALIFORNIA HONEY COMPANY, Hamilton & Company, Agents, 108 W. Sixth Street, Los Angeles, California.

WANTED—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—Comb and extracted honey, in carlots or less. Send sample with delivered price. Schultz Honey Co., Ripon, Wisconsin.

WANTED—Honey in carlots or less. Write Sherman Whitney, Puyallup, Washington.

WANTED—White Clover Extracted Honey. New cans. Clover Blossom Honey Co., 712 Kossuth St., Columbus, Ohio.

CASH FOR WHITE CLOVER HONEY and dark amber. Quote lowest price. George Anderson, 618 North 20th St., Milwaukee, Wisconsin.

WANTED—Extracted and comb honey. Send sample and quote lowest price.
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WANTED—White, amber, capping melter extracted honey, ten tons or less. Quote without wooden cases within 300 miles of Columbus. Also No. 1 and Fancy white comb, 500 cases or less, and white chunk honey, five tons or less.
Central Ohio Apiaries, Millersport, Ohio.

WANTED—Honey, all grades. Amber and capping melter honey our specialty.
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WANTED

WANTED—Exchange Printing for Honey.
Snapp Printing Co., Greeneville, Tenn.

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Grover, Bristol, Vermont.

FOR SALE—200 cases used sixty-pound cans, clean, good as new. 50c case, 2 cans to case. Old Dominion Health Foods Co., Lynchburg, Virginia.

FOR SALE—Nearly new eight room house and all necessary outbuildings for carrying on package-bee and queen business. Well located. Good climate, good water, good roads. Sell with or without bees or bee hive factory. Bargain. Terms to right parties. Key J. c/o American Bee Journal, Hamilton, Illinois.

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BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

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QUALITY BEE SUPPLIES. Prompt shipment. Reasonable prices. We take honey and beeswax in trade for bee supplies.
The Hubbard Apiaries, Onsted, Mich.

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WILL WORK YOUR WAX into plain medium brood foundation for 15 cents pound.
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R. C. Burd, Durand, Illinois.

MISCELLANEOUS

LETTERHEADS, envelopes, lowest prices, quality considered. Samples, prices free. Beekeepers' Printing Company, 1010 Eighth, Watertown, Wis.

BOOK BARGAIN—Very slightly damaged copies of Beekeeping in the South by Kenneth Hawkins, cloth bound, published to sell at $1.25, price postpaid only 29 cents.
American Bee Journal, Hamilton, Ill.

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FOR SALE — We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

New Italian Bee Book

We have just received through the mail direct from Italy quarto size book on bees entitled "Trattato Completo di Apicoltura" by E. Alphandery translated with notes and additions into Italian by Antonio Zappi Recordati.

This book, as the above indicates, is a translation of Mr. Alphandery's book published in France which has been previously reviewed in these columns.

The Italian edition contains some six hundred pages with a great many illustrations.

It has considerable original material by the translator as well as a large number of original photographs from Mr. Zappi as well as some other Italian photographers.

The book is complete we believe and can be considered a classic for Italian readers.

Unfortunately we do not know the price.

Our copy of the book is paper bound. For such a large book a clothbound copy would be far more desirable for library and reference use.

The paper cover, however, is a very finely colored illustration of the honeybee and the book throughout is not only authoritative but very attractive.

For Rusty Flat Irons

Mix shaved beeswax and salt together and then heat the rusted flatirons. Rub the mixture into the warmed irons until the rust is all rubbed off. Wipe off with a clean rag and the irons will be ready for use.

Benjamin Nielsen,
Nebraska.

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On the Great Northwest. Thousands of acres of sweet clover and other honey plants that give honey of high yield and fine quality. Favorable localities—Red River Valley, in Minnesota and North Dakota; Milk River Valley; Lower Yellowstone Valley; Valier Project; Kootenay Valley, in Montana and Idaho; and the Pacific Coast Region, in Oregon and Washington.

Beekeepers in this country are increasing their holdings and new beekeepers are establishing themselves along the Great Northern Railway in these states. Diversified farming and live stock are similarly favored by low cost production.

Write for Free Booklet on beekeeping and farming opportunities, including Low Homeseekers' Round Trip Excursion Rates.

E. C. LEEDY

DEPT. J, GREAT NORTHERN RAILWAY ST. PAUL, MINNESOTA

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NOVEMBER 10-16
1935

Purpose: Acquaint everyone with the merits of honey.

What For: So everyone may enjoy including honey in his daily menu the year round.

Who Shall Observe It: Everyone is invited to.

What Is To Be Done: The new National Honey Week program is just off the press! It gives ALL details. Free copy may be obtained from

AMERICAN HONEY INSTITUTE

MADISON -:- -:- -:- WISCONSIN

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Wanted Amber Extracted Honey

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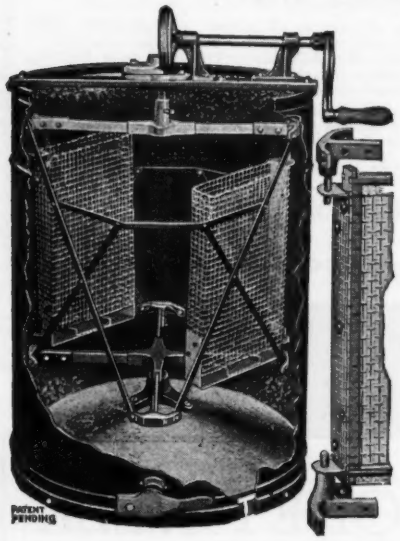

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can be lifted out to disinfect in boiling water, in disease control. This is important for your protection. An ounce of caution is worth a pound of cure.

Not a drop of solder used in basket and reel construction. Riveted to last, can't come apart.

Have you had experience trying to resolder metal parts that have been covered with honey? Don't go through that again. Try a Woodman all-riveted extractor. All sizes and capacities from bench size to power radials.

Send for special circular.

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AMERICAN BEE JOURNAL, HAMILTON, ILL.

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50 - 5 lb. Pails $3.15 100 - 5 lb. Pails $6.30
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60 lb. Cans (bulk) more than 50 - 30c each.
Individual cartons for 1 - 60 lb. can 10c each.

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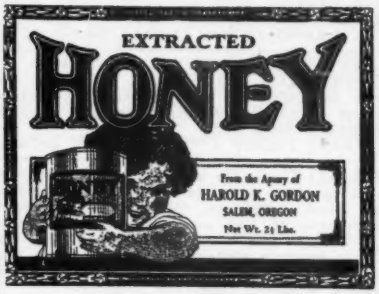

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Save Time! DADANT'S CRIMP-WIRED FOUNDATION Can be nailed into Lewis Slotted Bottombar Frames in a jiffy. And such wonderful combs you'll be proud of 'em! *Sold by dealers in Lewis Beeware & Dadant Foundation.* **Save Worry!**

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A superior equipment manufactured from the "Wood Eternal."
Package bees shipped in Season.
Queens available from our queen yards until November 1.
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POST OFFICE: MONTEGUT, LA. TELEGRAPH OFFICE: HOUMA, LA.

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

Asparagus is very attractive to the bees in midsummer, and from the sound of their hum among its blossoms one would conclude that they find there an abundant supply of honey. It seems, however, that nectar secretion is rather sparing and that pollen is the principal gain. With only about an acre of asparagus here one could hardly expect much honey, but apparently the bees do get some.

— : —

Inquiries about Vitex continue to come to me. There is some confusion of the different species. None of them is dependably hardy north of Missouri, and it is only **Vitex negundo** which appears to yield much honey. **Incisa** is a variety of **negundo** with deeply cut leaves.

— : —

The July Postscript mentioned the finding of worker bees in queen cells; but Mrs. Ruth Tucker, of Delphos, Ohio, writes that she was much surprised to find a clipped queen sealed in the cell. It was a large cell and since there were no eggs or young brood in the hive, she estimated that the queen must have been confined about eight or ten days. Mrs. Tucker is at a loss to account for the presence of an old queen in a sealed cell. She would like someone to explain how it happened. Thinking it a ripe cell she placed it in a nursery cage and could hardly believe her eyes when she saw the old queen emerge.

My explanation is that the cap remained fastened to a cell when a virgin emerged, and that when the old queen entered to investigate, the cap closed down and she was unable to escape until the cell was handled by Mrs. Tucker. Who has a better one?

— : —

This summer the old farm has been a very interesting place for one of my temperament. It is not a show place but a garden farm which provides livings for two families and where there is plenty of work to be done early and late. Our visitors' register records the names of 110 persons who were here between June 7 and July 7. Probably as many more came on business whose names are not included.

— : —

A new development which promises far-reaching effects is the organization of the Farm Chemurgic Council as a result of the Dearborn Conference. The object is to find new outlets for farm products through industrial research. Some of the nation's big men are connected with the movement. Dr. H. E. Barnard, who did such outstanding work in the formation of the American Honey Institute, is director of research. With this new organization and the Apple Institute starting off at the same time, Dr. Barnard should be busy.

— : —

One morning in late July I noticed unusual activity among the bees. For some time they had been getting but little nectar and had been very quiet. They were now beginning to fly freely, and the sound indicated a honey-flow. A visit to the sweet corn field revealed thousands of bees among the tassels. At the hive entrances incoming bees were carrying heavy loads of pollen. Apparently they were gathering nothing but corn pollen and were laying up an abundant supply of it against a day of future needs. It is too bad our Iowa cornfields do not yield nectar. The acreage would be sufficient to provide honey to feed the world.

— : —

One can hardly judge the value of a plant for nectar secretion by the number of bees which one sees on its flowers. Much depends upon the scarcity or the abundance of supplies in the field. In a time of scarcity hollyhock flowers are visited very eagerly. I have seen as high as six bees at one time on a single blossom; yet I doubt whether hollyhock yields very much nectar. Under a strong glass, which makes the bee look as big as a hummingbird, one can scarcely see the nectar. In contrast one can readily see the drops of nectar in the spiderflower with the naked eye.

There are few good honey plants in the mallow family to which the hollyhock belongs.

An interesting letter from Everett George, of Independence, Oregon, tells of large yields of honey from vetch and blackberry. He states that vetch honey is slightly red in color but that honey from blackberry is almost as clear as water. I have found but few places where the beekeepers report blackberry honey and in most cases they say that it is of an amber color. Of course, there are not many places where enough blackberries are grown to make much difference to the beekeeper.

— : —

Not enough reports concerning the blue flowered sweet clover have been received as yet to enable one to form any very definite conclusions regarding its value. One wonders, however, whether it may not prove to be adapted to the humid eastern states as the white flowered variety seems best suited to the dry areas of the West. One report from North Dakota tells of its blooming from June 16 to July 20 and reaching a height of forty-six inches. It will take several years and trials on a much larger scale than the present experiment to demonstrate its importance as an addition to forage crops already generally cultivated.

— : —

And now let me introduce my first granddaughter. Little Susan Joy has come to stay with Kent and Marie. Our readers know her daddy through his "Lives of Famous Beekeepers." Boys are common enough in our family but girls are rare.

— : —

Numerous inquiries as to where evergreen bittersweet can be obtained have come to me. I bought mine from the Henry A. Dreer seed house in Philadelphia. The Dreer catalog lists many interesting things which any gardener will find hard to resist.

— : —

The article, "Making Rapid Increase," in last month's Journal was reprinted from an issue of many years ago in answer to a request from an interested reader. This season, in the same location, has been very different, as feeding has been necessary to keep the bees going.

— : —

The May Postscript mentions a coral vine sent to me by E. L. Atkins, of Florida. I had hopes that it would make a luxuriant growth during our hot summer months. It has failed to do so. For some reason it has not been happy in our Iowa climate. The leaves appear healthy, but the plant refuses to grow. Perhaps the soil is too rich. Florida soil is mostly sand, while ours is a rich black loam. Many plants are exacting in their soil requirements and refuse to adapt themselves to different conditions.

— : —

Among the annuals spiderflower has been the most attractive plant for the bees here this season. It is constantly visited by butterflies and moths in large numbers as well as by the bees. Phacelia has been likewise attractive. On the other hand, mignonette, which has been so widely discussed as a honey plant, has been almost entirely unnoticed.

— : —

Beekeepers visiting the experimental apiary seem much interested in seeing just how the test for disease resistance is made and in noting the differences in behavior of the different colonies in removing the diseased material. It will probably be necessary to keep the colonies under observation for a year or two, in order to see whether those which show evidence of resistance remain clean or whether they may later fall victims to the scourge.

— : —

The first of August we had about five inches of rain here at the farm while ten miles south they had hardly a sprinkle. Three miles to the east crops were destroyed by hail. Certainly things are not evenly distributed as far as weather is concerned.

FRANK C. PELLETT,
Atlantic, Iowa.